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Address

SURGICAL TUBERCULOSIS IN THE ABDOMINAL CAVITY WITH SPECIAL REFERENCE TO TUBERCULOUS PERITONITIS.*

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The foundation of modern medicine lies in the scientific study of the dead. Postmortem revelations made possible our present knowledge, but we must not forget that it teaches terminal states and has led to that therapeutic skepticism which has been so prominent a feature of the last decade of medical thought.

The reaction from this nihilistic tendency has come from the surgical side, which has permitted of an examination of diseased processes while in an early stage with corresponding possibilities of cure.

There are many hard worked statistics handed down to us which are perfectly true in themselves but which are misleading in their general application. Among these are the statistics of Eisenhardt, who, in 1,000 subjects, dead from tuberculosis, examined in the Munich Pathological Institute, found 563 with intestinal tuberculosis and not one primary. Quite true; yet, if we studied 1,000 deaths in diabetes we should find a considerable percentage dying of tuberculous bronchopneumonia, and, so far as postmortem proof could be produced, there would be small evidence of the diabetes. Compare a little alteration in the islands of Langerhans in the pancreas with the gross lesions in the lung. This is equally true if the primary focus is in the abdomen, it is likely to be overshadowed by the secondary lung changes. Tuberculous strictures in the intestine go to the surgeon, likewise tuberculous fallopian tubes and appendices, and not to hospitals for tuberculosis. The gross changes which took place in the susceptible lung tissue may all be secondary to a local primary focus in any part of the body, yet at postmortem this could not be demonstrated.

Sims Woodhead, in 127 autopsies in children, found 100 with tuberculous mesenteric glands, and so firmly had the belief in the universal primary lung theory become that lengthy articles have been written to show how the mesenteric glands developed secondarily to a chest lesion. The advent of surgery into the abdominal cavity is rapidly eliminating these errors and experimental work is confirming the clinical testimony which has been produced. The tubercle bacillus is a true parasite, existing only in living tissue and having no saprophytic properties. Therefore, it does not often destroy its host, otherwise it would kill itself. It is usually the secondary pyogenic infections which terminate life.

In America, somewhat over 60 per cent. of cadavers show some form of tuberculosis, active or healed, and in Germany as high as 86 per cent. of cadavers have evidence of tuberculous lesions. The tubercle bacillus may pass the intact intestinal mucous membrane into the lymph spaces, where they are ordinarily destroyed. In Adami's laboratory, it was found that leucocytes passed out on the free surface of the upper intestinal tract and picked up bacteria, especially bacilli along with particles of fat, and carried them into the lymphatic glands, where they were annihilated. In this way they assisted to secure that relative sterility of the duodenum and upper jejunum which has rendered operations for gunshot and other perforations in this locality so much more favorable than in the ileum and colon. Evidence has also been produced to show that through the portal circulation, bacteria are carried to the liver and there destroyed or strained out with the bile, and in this infected bile lies the direct etiology of gallstones. If the action of the liver is interfered with, the power to overcome or eliminate bacteria is lessened. Kelynack, in 121 cases of cirrhoses of the liver, found that 10 per cent. had tuberculous peritonitis.

That infected particles are carried to the liver for destruction is further shown by the embolic pneumonia which often follows on gastric operations on account of the communication with the general circulation, through venous anastomosis about the cardiac orifice of the stomach, although its main channel of venous return is through the portal system. The liver and intestines, under equal conditions, are not subject to this disaster on account of their limitation to a portal circulation.

Practicing, as my brother and I do, in an agricultural community, we have long noticed the relative infrequency of pulmonary tuberculosis, evidently due to less frequent exposure to inhalation sources of infection, while abdominal, bone, joint and lymphatic disease of tubercular origin are common. Clinically, I cannot consider the milk question settled by Koch's dictum that bovine tubercle bacillus is not infectious to man, and, for that matter, he offered no proof which Theobald Smith had not previously brought out. Koch merely showed that healthy animals did not acquire human tuberculosis, neither does the average healthy human being acquire human tuberculosis. It requires either an inherited or acquired susceptibility to the disease.

One can not help believing that much of the extrapulmonary tuberculosis has to do with uncooked milk, which is a common article of diet in the country. The difficulties of transporting raw milk to cities limit its use and lead to sterilization by cooking. The work of Salmon, Ernst, and a host of other accurate observers has shown the possibilities of infection through the milk and food supply. The lungs are the primary

* Address on Surgery at the meeting of the Mississippi Valley Medical Association, Cincinnati, 1904.

source of tuberculosis in perhaps 80 per cent. or more of cases, but this should not lead us to ignore undoubted instances of non-pulmonary origin. Next to the lungs, the most susceptible localities to tuberculous invasion are the tonsils, where the lymphatic tissue lies directly exposed on the mucous surface, and in the intestine and appendix, in which practically the same conditions exist. The structure of the follicles of the tonsils corresponds very closely with that of the large follicles of the intestine and of Peyer's patches. These tissues may permit the passage of tubercle bacilli, but are not necessarily involved themselves.

Inoculation tuberculosis is best studied in surface infections, such as the postmortem finger of demonstrators of anatomy, and as seen in butchers and hide handlers. Regional lymphatic invasion often occurs and tubercle bacilli may be found in the glandular involvement. There is a marked tendency for the trouble to remain local.

Statistics of postmortem examinations may err in tracing primary lesions on account of the overwhelming character of secondary and terminal conditions. Statistics from the operating room are liable to error because of the limited character of the examination. In St. Mary's Hospital, from Oct. 1, 1894, to Oct. 1, 1904, a period of ten years, there have beeen 6,408 abdominal operations performed. Of this number 5,687 were intraperitoneal and 184, or about 3 per cent., were for some variety of tuberculosis. Localized intestinal tuberculosis occurred 21 times, 13 cases were primary and 8 uncertain.

Tuberculosis of the intestine occurs in three forms: 1, multiple ulcers due to inoculation from sputum swallowed by tuberculous patients, which at once demonstrates the possibilities of intestinal infection; 2, single, or at most a few, ulcers usually in the ileum, which have a marked tendency to heal with stricture formation. Such cases come to the operating table with obstruction; 3, conglomerate tuberculosis, usually of the cecum at its juncture with the ileum, giving rise to tumor and having the macroscopic appearance of carcinoma. The last two forms are often, if not usually, primary and due to accidental inoculation. The stricture-forming ulcer of the ileum may be resected or an anastomosis around the diseased part may suffice for permanent cure (ileocolostomy).

The tumor-forming variety, with its masses of fibrous tissue in and about the cecum, are best excised closing both intestinal ends and doing a lateral ileocolostomy. The latter operation, without excising the diseased focus, leaves an ulcerative mass to its own devices, and the opportunity for removing perhaps the only tuberculous lesion should not be lightly disregarded. In some cases greatly enlarged tuberculous lymph glands exist in the mesentery, and as many as possible should be removed.

Tuberculous disease of the appendix we have found as a localized process 29 times, with no deaths, in 1,888 operations for appendicitis. (in addition to this number the appendix was removed 629 times not included in these statistics, because secondary to other operations in the abdomen.)

The lymph nodes in the mesoappendix were often invaded and showed typical caseation on section. Localized surgical tuberculosis of the intestine and of the appendix have occurred in our series of cases in both male and female in nearly equal numbers.

Tuberculosis was found localized in the fallopian tubes 44 times without tuberculous peritonitis, the tubal lesions being securely walled off. As to how the trouble gets to the tubes, there is much disagreement. Is it through the circulation or is it, like gonorrhea, an ascending infection; or is it possible that tubercle bacilli, finding their way to the peritoneal cavity from any source, at once attack this favorable soil? Tuberculosis of the vulva, vagina and cervix is very rare. Tuberculosis of the uterus is not only rare but is largely confined to young girls before puberty and to old women after the menopause, while tubal tuberculosis is typically a disease of menstrual activity, being most common from the twentieth to the fortieth year. The ability of the tubercle bacillus to pass through the intact mucous membrane and to travel in the lymph spaces to a suitable soil like the fallopian tube is suggestive of an ascending infection. We have recently had a typical case of acute tuberculous pus tubes with tuberculous peritonitis, coming on three weeks after confinement and operated on two months later.

Those interested in the question should read the masterly monograph of Murphy on "Tuberculosis of the Female Generative Organs." I will, however, take this opportunity to call attention to the relative frequency of tuberculous peritonitis in the male and female. At the operating table we found about four females to one male. Osler found somewhat over two females operated on to one male. In other words, between the ages of 20 and 40 years, tuberculous peritonitis is certainly very much more frequent in females, and, so far as direct sources of infection are concerned, the tube is the one which may explain this difference in frequency. *There were 89 cases of tuberculous peritonitis, with 3 deaths.*

The clinic of this hospital is drawn largely from a fixed agricultural community and the majority of cases operated on who left the hospital improved but failed to stay well, returned for further treatment. A considerable percentage did not maintain the improvement, and, in the course of years, patient after patient would return with relapse of the peritoneal condition or some other form of tuberculous infection. Some returned for further operation as many as four or five times. It became evident that, in a considerable percentage of cases, there was some source of reinfection of the peritoneum after apparent cure.

About three years ago, Dr. J. B. Murphy called our attention to the fact that in tuberculous peritonitis with ascites, in women, the fallopian tube of one or both sides would usually be found open, that is, an eversion of the fimbriæ with thickening of the tube, and especially of the mucous membrane. We have had an opportunity to verify this in a considerable number of cases. We further noted that, in some instances, after removal of the fluid by laparotomy with cure of the peritoneal condition there could later be detected in the region of the tubes masses which had not previously been felt. This observation was confined to a few individuals, but it led us to examine the pelvic condition of every case of tuberculous peritonitis which was operated on. Investigation showed marked tuberculous thickening of the tubes in the majority of such patients. On removal, these tubes showed typical lupus of the mucous membrane, with cheesy deposits, and in a number of specimens we were able to stain tubercle bacilli in the tissues. In a minority of cases the tubes were found to be normal.

Having under observation a small number of patients in whom simple laparotomy had failed to permanently cure tuberculous peritonitis, we began to do a radical operation, performing hysterectomy with removal of ovaries and tubes. The condition of the uterus and

ovaries, on examination, did not justify so mutilating a procedure, the tubes showing unmistakable evidence that they alone were the source of reinfection. It became clear that in tuberculosis of the peritoneum in the large majority of women a lupus of the mucous membrane of the tube was the source of infection of the peritoneum, and that the latter condition was secondary to the former, a conservative process on the part of Nature in the attempt to absorb products of tubal tuberculosis turned loose in the peritoneal cavity. Some of these operations have been among the most trying of our surgical experience, adhesions matting the intestines, bladder and uterus into a confused mass, with free fluid in the abdominal cavity, the tubes occupying the part of a roughly walled-off foreign body. In several instances the anatomy was indistinguishable, the uterus and tubes being located by tracing a round ligament from the abdominal wall downward. One is in constant fear of doing irreparable damage to the bowel or other viscus with a resulting fistula which would be impossible of closure. By patience and care we found it possible to enucleate tuberculous tubes in 26 cases of tuberculosis of the peritoneum. If the adhesion wall was fairly good, a pus tube containing a quantity of tuberculous débris and cheesy deposits would be found. The intestine, and especially the sigmoid, often showed a thick white degenerative patch, caused by extension from the tubes. Sometimes a tube of one side would communicate freely with the peritoneal cavity, while the opposite side would be more or less boxed off and contain products of the tuberculous disease. Occasionally a tube on one side would be converted into scar tissue with complete obliteration of the mucous membrane cured by natural processes, while, on the other side, active disease would be present. This last variety was most interesting as showing that Nature did cure at times and by the usual process of development and contraction of fibrous tissue.

In practically all these cases the peritoneal involvement was greatest in extent near the seat of local infection; this has been generally noted and heretofore ascribed to gravity. It is more likely to be due to proximity to the seat of infection. This is further borne out by those occasional patients with limited collections of fluid caused by tuberculosis of the pelvic peritoneum and which so much resembles ovarian cystic tumors. Spencer Wells accidentally cured the first case under misapprehension that it was an ovarian tumor. In tumor-like collections of fluid an open fallopian tube will usually be found to communicate with the interior of the sac. Two such cases in our late experience demonstrated this condition perfectly. There was a sacculation, having the physical appearance of an ovarian cystomata, the size of a seventh month gestation; the tubes were tuberculous and projected well into the cavity. In both cases we were able to completely enucleate the newformed sac and the tubes.

Theories as to the reasons for the curative effects of laparotomy in tuberculous peritonitis are too numerous to mention; Gatte gives more than 20. It appears to us that simple laparotomy, with removal of the fluid, acts in two ways: 1, that in tubal disease the fluid mechanically separates the fimbriated extremity of the tube from the surrounding tissue; 2, after removal of the fluid, contact with neighboring structures, with resultant adhesion, may follow. This prevents peritoneal reinfection and confines the products to the pelvis, and accounts for the lateral pelvic masses which are sometimes developed after the disappearance of the fluid. It also enables Nature to bring her resources to bear on a localized focus and develops the self cure that was noted in the cases mentioned. Undoubtedly the operative manipulation causes serum to be poured out and thereby increases the peritoneal powers of absorption. Lupus of mucous membrane in any part of the body is a most stubborn form of tuberculous disease. The fallopian tube is no exception to the rule and, in addition, seems to have a selective affinity for tubercle bacilli, in this respect nearly resembling the alveoli of the lungs. As previously noted, the frequency of tuberculous peritonitis in women is several times greater than in men, and this certainly confirms in a remarkable degree their peculiar liability on account of tubal lesions. In this agreeing with the splendid work of Williams.

In carrying out these investigations of the pelvic conditions in women with tuberculous peritonitis, we found in a minority of patients no tubal disease, but a well-marked chronic appendicitis with enlarged glands in the mesoappendix, and on section the glands showed typical caseation. In many instances the region of the greatest distribution of tubercular peritoneal nodules could be shown near the appendix. In some cases neither the tubes nor the appendix was diseased and the origin was doubtful. In four persons tuberculous peritonitis was found limited to the upper abdomen above the transverse colon. These patients had well marked symptoms and were operated on under the impression that the trouble lay in the gall bladder, duodenum or stomach. The ages ranged from 36 to 56. The primary source of infection we could not trace; 3 were in women, 1 in a man. Since January 1, this year, we have operated on 16 cases of tuberculous peritonitis; of these 11 were women, in 9 of whom the origin was in tuberculous tubes, 1 in the appendix, 1 unlocated; 5 were in men, 3 with tuberculosis of the appendix and cecum, 2 unlocated.

Fenger, in a most exhaustive analysis of the subject, sustained the opinion by Borchgrevink, who claimed that medical cures were as numerous as operative, and that it was not proved that tuberculous peritonitis was a surgical disease, even in its most favorable form, in which ascites was the prominent feature. So strong was he in his conviction that tumor-like collections of fluid existing in the pelvis were not excepted. The assertion was too sweeping and one which the trend of surgical thought had failed to sustain. Ochsner, in a most excellent résumé of this subject before the American Surgical Association, 1902, proved beyond question that laparotomy and evacuation of the ascitic accumulation had a most beneficial effect on the disease. While simple abdominal incision and drainage has failed to cure all the cases, it did cure many and usually gave relief for a time, and if reinfection could be prevented the cure might be expected to be permanent in a much larger number.

Can we prevent relapse? Certainly we can in many instances. Of the 26 radical tubal operations we have made on cases of tuberculous peritonitis, 25 recovered; of these 7 had been operated on by simple laparotomy from 1 to 4 times previously. In not a single patient as yet has another operation become necessary, and, as contrasted clinically with a preceding group of equal number, the favorable results are most striking. There is usually a temporary continuance of the peritoneal effusion, but reinfection has not occurred. The outcome where the appendix has apparently been the seat of trouble has been favorable but not so brilliant as in the tubal form of disease.

It has appeared to us that ascites has been more common in women with tubal tuberculosis, while in both males and females fibro-plastic forms have been relatively more common where the appendix or an unlocated intestinal lesion has been made the source of peritoneal invasion. This later condition is probably due to a mixed infection, but the secondary organism is evidently shortlived and we find only its results at operation. We have not often operated on the fibroplastic adhesive form and we have been slow to operate in any case during the acute stage.

In tuberculous peritonitis in women, we evacuate the fluid and place the patient in the Trendelenburg position, packing off the general abdominal cavity in the usual manner. The pelvic organs, appendix and cecum are examined. If the fallopian tubes, appendix and cecum are diseased, they are removed. The stumps and walls of tubercular abscess cavities are dried and a little sterile iodoform rubbed in and the abdomen closed without drainage. Drainage sometimes leads to secondary mixed infection with resulting fistulæ, which have a great tendency to become fecal.

In men, the incision is placed to the right of the median line over the appendix. The fluid is evacuated, the appendix and cecum examined, after which a radical operation, if indicated, is performed.

From the narrative of facts and observations so briefly set forth, I think we are justified in the belief that the failure of simple laparotomy and evacuation of fluid exudate in tuberculous peritonitis to maintain a high place in surgery is due to reinfection from lesions in the mucous membrane of the fallopian tube, appendix or some part of the intestinal tract. We have been treating a symptomatic peritonitis instead of removing the source of disease. That many times the infecting lesion cannot be discovered is true, and it is equally true that not all cases can be explained in this way. Experience teaches that under expectant treatment many of the primary lesions are cured by natural processes. Simple laparotomy and drainage aids recovery in a remarkable manner. Radical operation on the primary lesions in tuberculous peritonitis will greatly increase the percentages of cures and prevent reinfection of the peritoneum.

In conclusion, it seems reasonable to suppose that tuberculous peritonitis has its origin in a local focus in practically every case, as is the fact in septic peritonitis. Peritoneal reinfection may be prevented if the local focus can be removed. Whether the patient will regain and maintain general well-being must depend to a large extent on whether the local focus thus removed is primary or secondary and, if secondary, as to the possibilities of cure of the chief seat of disease.

Secret Nostrums in the United States.—The United States is a land in which patent medicines, and proprietary medicines flourish exceedingly. The drug consumption per capita of the inhabitants of America undoubtedly exceeds that of any other country. Some of the "remedies" sold are good, some are indifferent, and some are distinctly bad. But the worst feature of the situation is that the ordinary individual is unable to discriminate between the different kinds and is wont to take whichever one is recommended to him by the druggist or appears from the description on the bottle as the most likely to benefit the complaint from which he is suffering or imagines that he is suffering. The present situation has been largely brought about by the physician himself.—*The Lancet.*

Original Articles

STUDY OF THE ECONOMIC COURSE OF CONSUMPTION IN WAGE-EARNERS.*

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BALTIMORE.

It has been aptly said, and with some degree of truth, that a well-bred person never insists on facts. The person who forces his facts into the minds of others by the brute force of figures is usually called a statistician and is frequently considered a bore. Like other pests, however, he has his usefulness and, while it may not be the good fortune of the statistician to adorn a tale, it frequently falls to his lot to point a moral, and in medicine the brute force of figures will always be the court of final resort.

It is my misfortune to-day to have to offend from both points of view, to insist on facts and to drive them home by figures, but I will feel that I have not offered myself in vain as a sacrifice on the altar of science if I can aid in any way in the elucidation of the course of a great economic, social and medical problem.

Though I have placed the medical portion of this trilogy last and the economic first, I would not by any means maintain that the medical aspect of this problem comes last or the economic first in point of importance, as many statisticians hold, for the statistician is, as a rule, prone to assign a place of minor importance to the medical side of tuberculosis. My own inclination still is to place the medical side of the problem in the first place.

Of course, by medicine we do not understand the mere "practice of physic," which, while having something, no doubt, to promise from the curative standpoint, has nothing at all to promise in the way of prevention; I would understand rather the larger control of sanitary affairs by medical men from the medical standpoint. The physician, however, has yet to understand and to appreciate the importance of the economic and social sides of tuberculosis. This paper deals with the economic course of the already existing disease (a matter of lesser importance from the physician's viewpoint than the economic problems concerned in its development). It is certainly a practical necessity, however, for the members of our profession to be acquainted with all sides of the problem with which they will first (of all persons, I believe) be called on to deal.

The statistical considerations will give, in my opinion, the most complete and just estimate of the problem as well as the most perfect view of all its sides and phases. From the dry prehistoric bones the naturalist has reconstructed the pterodactyl, the megatharium, and other monsters of the pliocene period. We may reconstruct in the same way the modern apparition of tuberculosis from statistics dug from the dry conglomerate mass of figures with almost equal patience and labor. Statistics will incline, I believe, to give the greatest importance at the present time to the economic and social sides of tuberculosis. The remarkable sympathy of the economic and tuberculosis curves can leave no doubt whatever as to their intimate relations and much of the present improved state of tuberculosis must be laid to one or the other of these factors.

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

We do not appear as yet to be able to lay the greater part of the present better conditions to the credit of medical progress, although I believe the latter to be undoubtedly the proper direction from which to attack this problem, as it comprises the direction from which to attack all other problems, namely, the standpoint of causation.

It will be well to remember, however, that we are called on to deal with actual and not ideal conditions, and there is always a large contingency connected with any such ideal generalization as Pasteur's statement of the possibility of the elimination of any parasitic disease. (*C'est dans le pouvoir humain de faire disparaitre du monde tous les maladies parasitaire.*)

The course of tuberculosis in any individual case includes a number of profound, divergent and far-reaching effects, produced by a common cause. Even considering alone the mere economic effects of tuberculosis and ignoring the social and moral problems connected therewith, we have to deal with very complex conditions.

The accurate study of one class of these factors, namely, the personal item of economic loss, is a foundation on which it appears all correct economic deductions must be built.

My personal experiences have convinced me of the possibility of obtaining a high degree of accuracy in this study—sufficient at least for accurate and correct statistical deductions.

It is a study of this character made in Maryland in the work of the State Tuberculosis Commission which I believe to furnish a sufficiently accurate and substantial foundation for statistical deductions—to justify its presentation before this Section of the Association.

The economic course of tuberculosis is wholly distinct from the clinical course, but closely related to and dependent on the latter. It does not affect the economic course of tuberculosis how many persons are suffering from the disease or to what extent so long as their economic powers remain unimpaired; and the economic

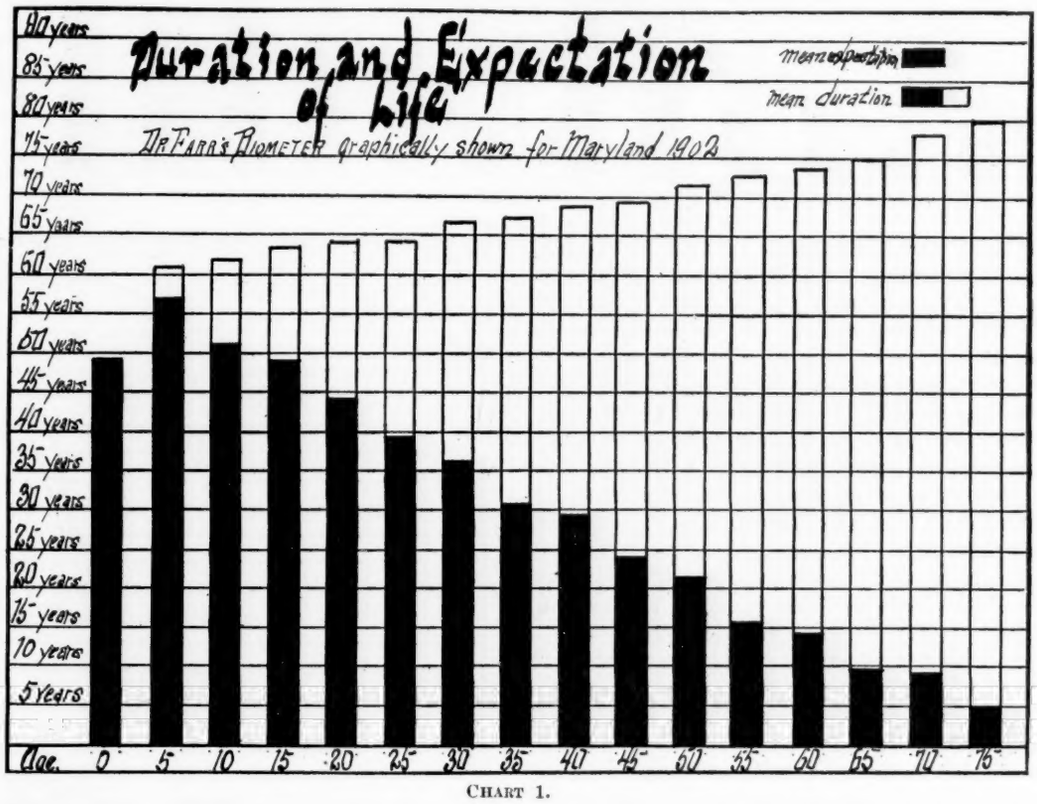

CHART 1.

While these effects may be grouped under generalizations, they are far from being general conditions and their individual potentialities are inextricably blended to produce a heterogeneous whole.

As a merely general classification we may consider the economic course of tuberculosis from some three or four standpoints.

1. Economic effects on the state.
2. Economic effects on the local community (town, county or village).
3. Economic effects on family.
4. Economic effects on the individual.

It is questionable if the generalizations, calculations and guesses by which many social economists have endeavored to determine the amount and directions of these influences have aided at all in the clearness of our conceptions. It may be safely said at least that the conclusions have, as a rule, been most inaccurate.

history of the individual does not become apparent in the columns devoted to loss until such a depreciation occurs. The duration of time during which the individual may have tuberculosis with unimpaired earning capacity depends not only on his constitution and the virulence of the disease, but on the nature of his occupation and the pressure of necessity. It goes without saying that the earning capacity of an individual whose occupation requires long and severe muscular labor, such as a coal miner, will be sooner impaired by the onset of tuberculosis than in the case of a corporation attorney, bookkeeper or other person engaged wholly in mental work.

The course of any case of tuberculosis will accordingly naturally fall into three periods.

1. *Working period* or period of unimpaired earning capacity, including the period of health from the commencement of a gainful occupation and the early period

of disease from the onset up to the time of diminished earning capacity.

2. *The period of partial disability,* or period of irregular work at reduced wages. This period may last in individual instances until the advanced stages of the disease.

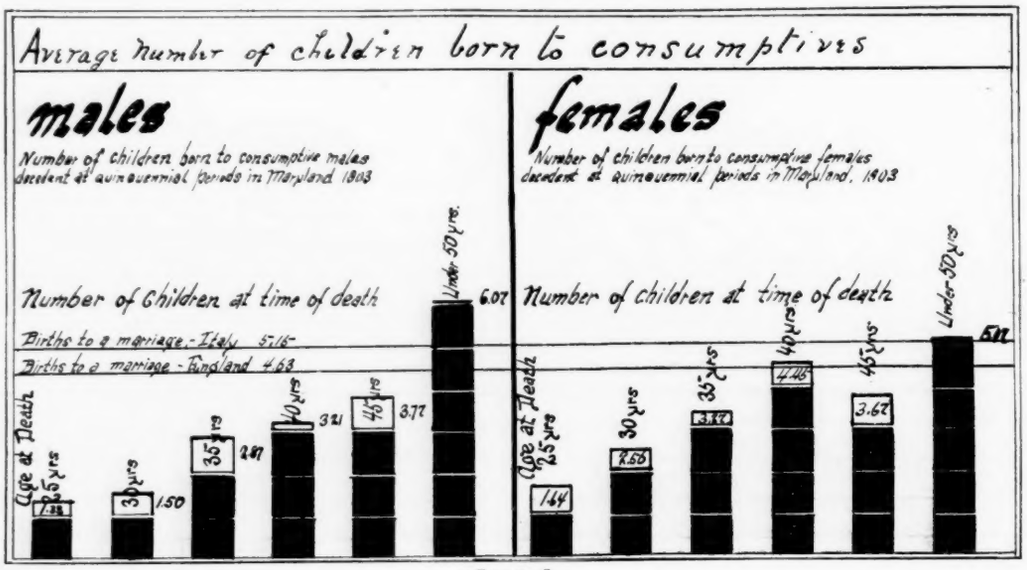

CHART 2.

3. *The period of complete disability* with or without dependency. Whether or not dependency occurs depends on many features, such as the duration of the disease and the earning capacity of the remainder of the family unit.

From the state's point of view the usefulness of any of its citizens ceases with the cessation of his economic activities. Not only is the state a loser in this way, but an immediate item of expense may arise in the ultimate dependency of a large proportion of wage earners. It is in this latter class that the heaviest loss to the state will occur, as these individuals not only cease to be producers, but the community must provide for their care and support. In the State of Maryland at the present time there are 10,000 consumptives, 8,000 of whom have ceased to be economic factors in their communities. The state may have to provide for the support ultimately of these 8,000 people who are not economic factors and the majority of whom have no likelihood of ever becoming such, a number larger and more expensive in proportion than the German army and who, far from procuring and guaranteeing the safety and integrity of the state, are a source of danger or an actual menace to those about them.

Among diseases tuberculosis ranks first, with the single exception of insanity, in the extent and amount of dependency it produces. Of 177 wage-earning males tabulated in this paper among whom careful inquiry was made concerning the original and ultimate economic condition, 72, or 40 per cent., became dependent on charitable aid during the course of their disease; 26, or 14 per cent., died in charitable institutions, and we have good reason to suppose that the majority of others received at some time charitable aid.

The influence of tuberculosis on the ultimate history of the family in which it appears causes infinitely more damage than that suffered by the state, as its effects rest on only a small number of persons. The ultimate destruction or disintegration of the family unit is only too frequently the result of tuberculosis when it appears in the wage-earning member of the family.

The causes producing the final result are very much more far-reaching than the mere deprivation of the income of the wage-earning member. Histories of such families show that the result of such long-continued

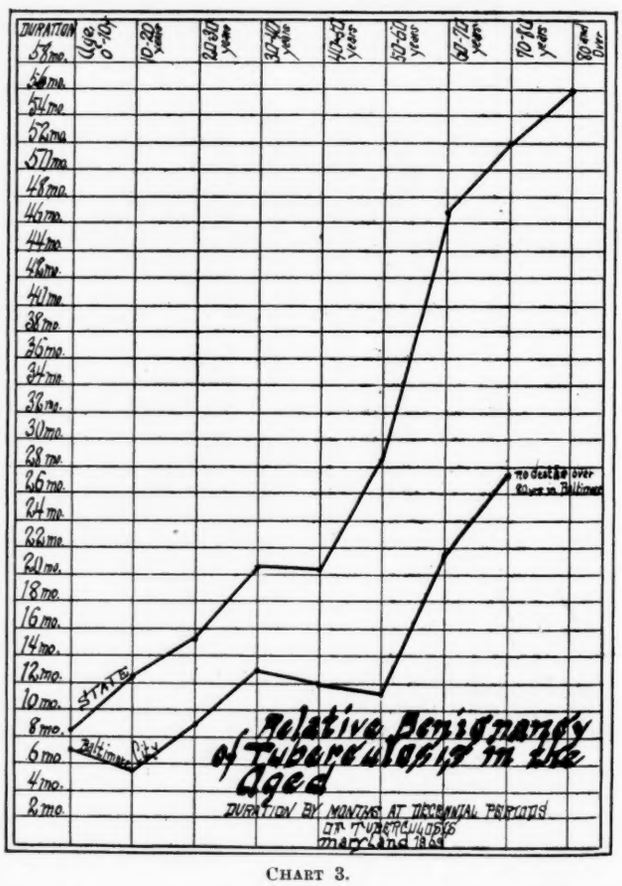

CHART 3.

illness is not only a complete exhaustion to the family treasury, but an ultimate destruction of a considerable portion of the family from the disease. There seems to be no other disease of such malign influence in its tendency to bring the family unit down to the lower levels of social and material welfare.

We have no method of computing in figures the effect on the family produced by the death of its non-productive members, more especially the mother, but the effect on the family will ultimately be as great or greater than in the death of the wage-earning parent, though the results may appear in other ways.

It is evident that many factors will enter into the duration of the three periods of the consumptive's economic life already specified and the economic loss connected therewith. Many of these can neither be ascertained nor described, but the influence of sex occupies a particular field in which the conditions are interesting and to a limited extent easily determined; but before the consideration of these varying features it becomes necessary to determine the normal working period of the wage earner, its normal duration, and the life capital dependent thereon.

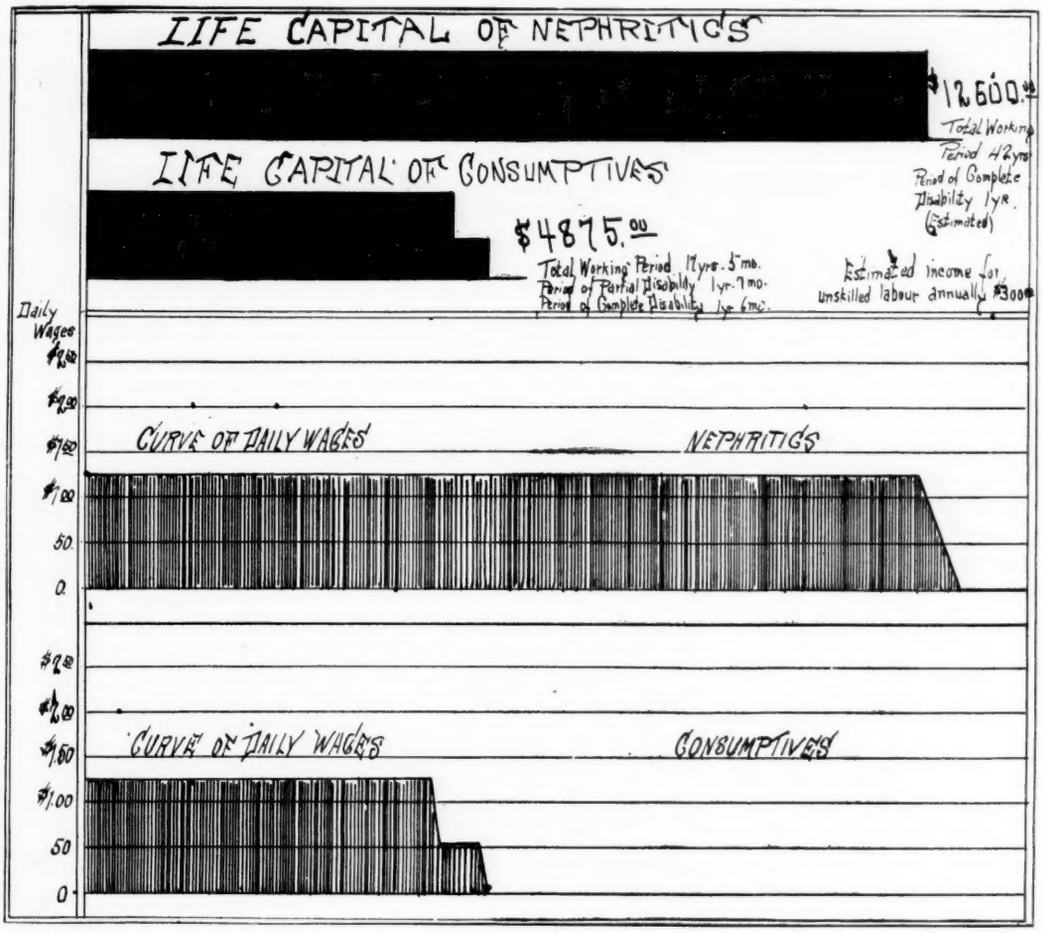

CHART 4.

The consideration of highest importance is the male wage earner, as the presence of the female engaged in a gainful occupation can not be considered a normal condition from a social point of view, and there are other considerations indicating that this condition is only a temporary and irregular expedient. The most important social duty of the female is the increase and the conservation of the human living capital of the state. This duty is fortunately not impaired by the conditions arising from tubercular diseases.

The study of the accompanying chart makes it plainly evident that in Maryland at least the deficiency in the birth rate of consumptive females is the result of death and not of impaired procreative power, though I am aware that the contrary view is usually held. The chart indicates that both consumptive males and females surviving to the age of 45 years and over, show a number of births in excess of the average fecundity of Italians and English, the former of whom are especially prolific.

The loss incurred by any particular case of tuberculosis must fall in one of two divisions. 1. Actual loss occurring during the course of the disease in the individual and extending up to the time of his death. 2. Potential loss beginning at the death of the individual and extending for an indefinite period; best estimated from the mean duration of life or expectation of life (provided the tuberculous infection does not intervene), at the age at which death occurs.

The question of the mean duration of life will serve to illustrate the fallacy of calculations applied to the tuberculous based on the whole healthy population or any part thereof. It is not my purpose to enter into any of the other elements of fallacies which may arise in dealing with the very complex economic problems connected with this subject.

It may be shown by examining the chart that the mean duration of life of the consumptive at the age of the onset of his disease is not only not proportionate to the expectation of life of healthy persons as the specified age period, but is, in fact, in an inverse proportion thereto. From the tendency of tuberculosis to take a relatively benign course in those advanced in years the general economic law follows: *The actual economic loss of any given case of consumption is in direct pro-*

portion to the age of the consumptive, and the potential loss is in inverse proportion to the age, which is corollary to the more general statement that the longer the life of the consumptive the greater the actual loss and the less the potential loss produced by his disease, after the period of total disability is established, and conversely.

The consideration of first importance in determining the economic potentiality of an individual is the estimation of the life capital accumulated by him as the result of his labors during his life. For this comparison there has been selected on the chart the life capital of the unskilled laborer, as a class furnishing the largest number of deaths from consumption. The normal working period has been estimated, both for male and female wage-earners, from the eighteenth to the sixtieth year, after which the degenerations incident to age are considered to terminate the economic usefulness of the individual. In the chart the average life capital accumulated by the consumptive day laborer in Maryland is compared with that accumulated by those dying of chronic diseases of the kidneys, which are among the earliest and most frequent of the degenerative diseases appearing with advancing years. The long black column indicates the life capital accumulated by the average individual dead of chronic diseases of the kidneys, while the smaller column indicates the average life capital accumulated by the consumptive dying in the same year. Each seven-twentieths of an inch in the length of the column indicates one year's work with an accumulation of $300 capital. The nephritic will have worked forty-two years and accumulated the life capital of $12,600, while the consumptive will have worked fifteen years and six months and have accumulated the life capital by that time and during the succeeding year and seven months of his disease, during which he is able to do light work, of $4,925. Below, the curves of wages are indicated, usually terminating abruptly with the onset of the degenerative diseases, but showing a marked preliminary decline to a lower standard in the case of the consumptive; the usual course of the degenerative disease being progressive, and without marked remission, while the ultimate complete disablement of the consumptive is usually preceded by an irregular period of partial earning capacity. This period is greater in females and in those living in the country.

Another factor influencing this period and consequently the duration of the disease is the annual expenditure which the tuberculous individual is able to make for the betterment of his condition.

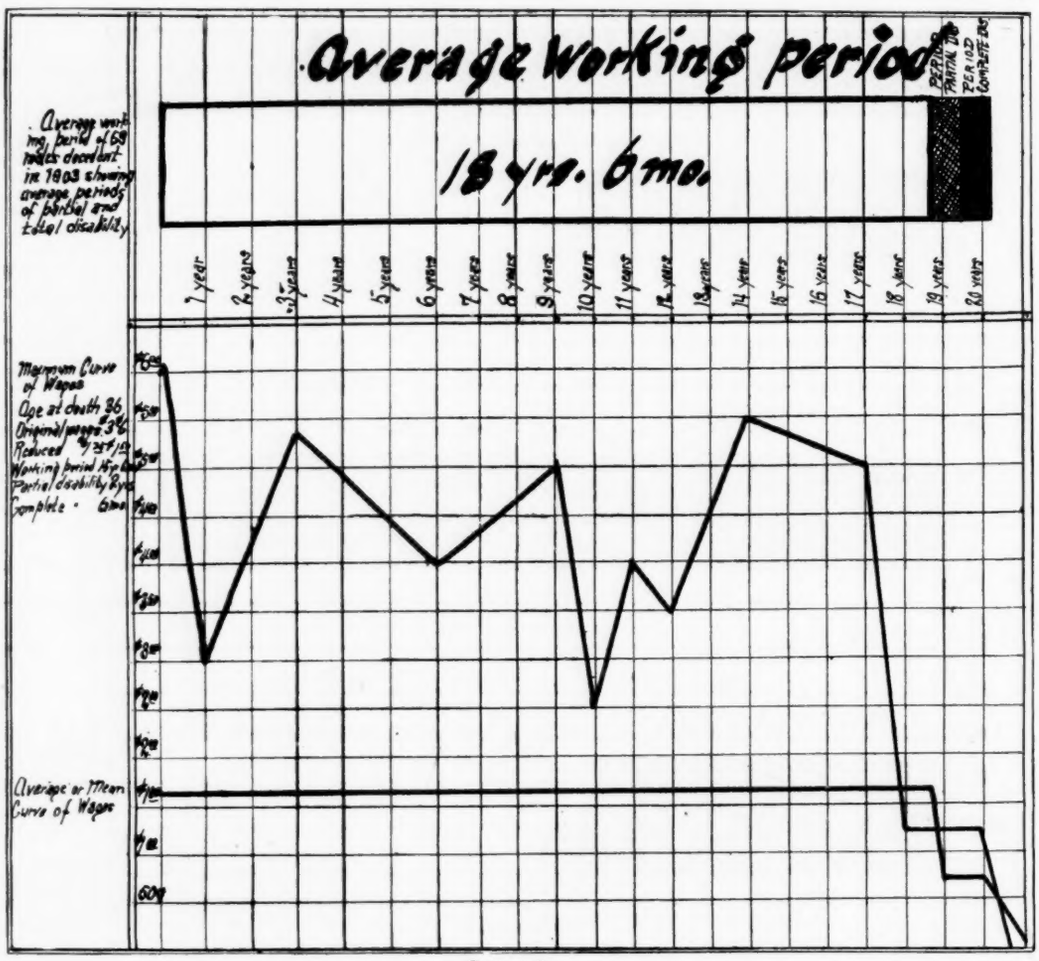

CHART 5.

Reincke's study shows a distinct advantage for the well to do, and the experience of the physician in private practice tends to show a more prolonged duration in this class than among manual laborers with uncertain incomes.

The factor of age should be eliminated from all calculations of this character, as in all occupations there is an increased income with the advance of age, and deductions made without reference to this factor may erroneously ascribe a gain to increased income really due to advancing years.

The statistics undoubtedly indicate a considerable

disadvantage of those capable of only a small expenditure, such as less than $250 annually. The ability to expend over $3,000 annually seems to possess a very questionable advantage. The items comprising the important factor of personal expenditure or loss incident to the disease include mainly the following:

The period of partial disability.
The period of complete disability.
Money loss in each period.
Expenditures falling on the patient.
Expenditures falling on the family.
Cost of maintenance.
Expenditures incident to death.

It is evident that no estimate can be complete in any given case until the disease has run its course and terminated either by death or in recovery. For statistical purposes and for the proper consideration of the course of the disease, the wage-earners tabulated and charted in these series have been divided according to sex. A further distinction has been made between cases in which there was partial disability and cases in which disability when it occurred was total from the onset. Further distinction may be made of fatal cases in which disability was never complete, the disease terminating abruptly by some of the accidents not infrequent in its course, such as edema glottidis or hemoptysis. No cases resulting in recovery were tabulated among this series of charts, as the class of persons among whom careful economic study was made did not furnish a sufficient number of recoveries to lend themselves readily to tabulation.

Theoretically, the periods of economic disability may appear at any part of the band which represents the whole working period. Though occurring usually at the further end they may occur in the center or appear twice or more in rotation.

The duration of the disease before economic injury becomes manifest is naturally a variable factor. The variation in the periods of disability is governed more by the economic than the clinical course of the disease, the pressure of necessity being potent in many instances to hold in their daily routine many cases well advanced in the disease.

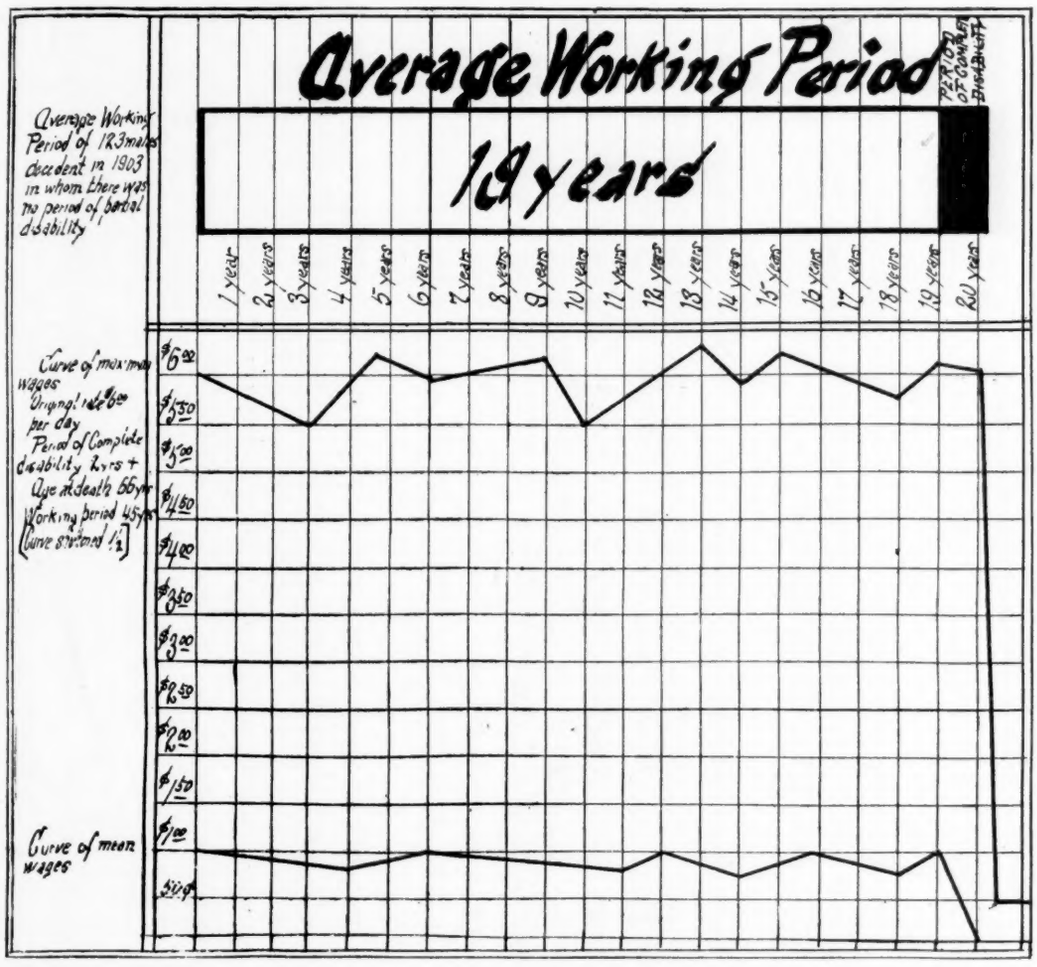

CHART 6.

Of the 71 wage-earning males charted in the series (5, 6, 7 and 8), one was tuberculous for nine years and eight months before economic impairment became manifest (maximum among these cases), one was tubercular nine years before his earning capacity became impaired, one over six years, five over four years. In 23 cases the patients reported themselves free from the disease up to the time their working powers became impaired, the onset of economic disability being apparently synchronous with the onset of the disease. The longest duration reported in the period of impaired earning capacity was eight years. In 2 cases the duration was over five years, in 2 over four years, in 3 over three years, in 10 over two years, in 14 over one year. In 36 cases there was no

TABLE 1.—WAGE EARNING MALES.

Period total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.	Period of total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.
18 months.	Not given.	Over 1 year.	$ 390	$1113.00	$14038.00	33	6 months.	2 months.	3 years.	$1000	748.00	27048.00	40
14 months.	2 years.	About 5 years.	.....	1200.00	4800.00		11 months.	Not stated.	8 months.	450	468.50	18693.50	20
6 months.	Not given.	.....	.....	204.00	5604.00		5 months.	Not stated.	8 months.	725	450.00	27575.00	26
12 months.	3 years.						2 weeks.	7 months.	7 years.	500	279.00	14779.00	37
3 months.	2 years.	25 years.	1000	752.00	15602.00	31	3 months.	4½ years.	5 years.	450	1262.50	10712.50	43
9 months.	3 months.	About 18 months.	.....	750.00	22875.00		3 years.	4 months.	13 years.	500	896.00	14046.00	42
9 months.	Not stated.	.....	.....	520.00	7720.00		6 months.	Not stated.	4 years.	260	405.50	10516.00	24
2 years.	2 years.	.....	468	1828.00	7220.00	61	5½ months.	4 months.	9½ months.	450	694.75	18919.75	21
6 months.	1 year.	8 years.	.....	519.55			6 months.	Not stated.	1 year.	486	474.40	7084.00	59
2 years.	.....	.....	.....	2100.00	23100.00		2 months.	Not stated.	6 months.	450	214.00	16864.00	25
6 years.	Not stated.	8 years.	390	2695.00	7945.00	60	6 months.	Not stated.	6 months.	300	176.00	12326.00	19
10 months.	None.	2 years.	.....	783.00			7 months.	Not stated.	2 years.	780	1719.15	14979.15	56
1 years.	None.						9 months.	9 months.	1 year, 3 months.	780	873.00	32463.00	22
3 months.	None.	1 year, 7 months.	520	318.50	5318.50	63	3 months.	4½ months.	5 years.	468	1262.50	.....	43
6 months.	1 year.	3 years.	.....	400.00	3200.00		6 months.	Not stated.	6 months.	312	176.70	12812.70	19
6 months.	None.	About 1 year.	312	285.00	3285.00	63	7 months.	Not stated.	2 years.	780	1709.50	14189.50	56
6 months.	None.	1 year.	168	608.00	18983.00	25	2 months.	Not stated.	6 months.	316	214.80	11906.80	25
10 weeks.	About 1 week.	About 7½ mos.	208	124.00	8124.00		6 months.	Not stated.	1 year.	421	474.40	6200.00	59
6 months.	None.	2 years.	156	280.00	6280.00	22	9 months.	9 months.	Not stated.	780	873.00	32463.00	22
3 months.	None.	2 years.	.....	125.00	7625.00		6 months.	2 months.	3 years.	1040	748.00	28100.00	40
4 yr., 11 mos.	Not stated.	5 years.	468	3307.00	15007.00	39	10 mos. 2wks.	Not stated.	8 months.	468	468.50	19422.50	20
1 year.	None.	1 year.	546	725.00	19100.00	26	5 months.	Not stated.	8 months.	754	450.00	28498.80	26
2 months.	5 months.						2 weeks.	7 months.	7 years.	520	279.00	16035.00	37
1 year.	None.	About 1 year.	.....	393.00	5343.00		1 year 5 mos.	4 months.	13 years.	520	896.00	14572.00	42
3 months.	None.						6 months.	Not stated.	4 years.	260	405.50	10935.00	24
1 year.	8 years.	About 8 years.	.....	1500.00	19500.00		5½ months.	4 months.	9½ months.	468	624.75	19578.75	21
1 month.	7 months.	9 years.	2496	1748.50	76148.50	34	2 months.	Not stated.	7 years.	468	123.85	13227.85	33
2 months.	5 months.	About 10 months.	150	238.00	8158.00	30	2 months.	6 weeks.	l. 8 months.	1300	490.90	39490.90	34
6 months.	None.	6 months.	390	175.00	10815.00	40	9 months.	Not stated.	l. 1 year.	936	720.00	16932.00	54
1 year.	2 months.	.....	.....	810.00	32040.00		2 months.	Not stated.	l. 4 months.	312	101.10	14541.10	17
13 months.	Not stated.	5 years.	.....	832 60			2 months.	Not stated.	l. 2 months.	260	96.50	9716.50	28
3 months.	1 year.	1 year.	312	411.00	10361.00	32	3½ months.	Not stated.	l. Not stated.	468	162.00	12116.00	44
2 years.	None	2 years.	312	1430.00	13430.00	18	3 months.	Not stated.	l. 1½ years.	360	114.00	10914.00	43
7 months.	None.	About 6 months.	514	339.35	10239.35	44	2 months.	None.	l. 2 months.	360	48.00	9828.00	42
6 months.	10 months.	1 year, 3 months.	468	500.00	14450.00	30	2 yrs., 9 mos.	3 months.	l. 8 years.	600	1626.00	15426.00	44
3 years.	None.	2 years.	1250	4925.00	46925.00	24	2 months.	2 months.	l. 10 years.	1560	2034.00	26394.00	54
3 years.	None.	3 years 2 months.	624	2144.00	8144.00	62	None.	None.	l. 6 months.	468	3.50	14043.50	36
6 weeks.	6 months.	1 year.	702	500.00	20725.00	35	6 months.	Not stated.	l. 1 year.	468	218.50	10982.50	45
7 months.	4 months.						1 year 2 mos.	Not stated.	l. 7 years.	624	1225.00	9711.40	57
9 months.	2 years.	3 years.	468	842.00	11642.00	40	6 weeks.	2½ years.	l. 18 months.	832	585.00	19721.00	43
2½ months.	1½ months.	4 months.	218	159.00	8559.00	21	Not stated.	Not stated.	l. 10 years.	156	.....	4002.80	43
¾ month.	None.	2 months.	208	280.00	6280.00	19	2 yrs., 3 mos.	Not stated.	l. 3 years.	.....	553.00	.....	29
7 months.	2 months.	7 months.	468	848.00	12098.00	34	4 months.	Not stated.	l. 2½ years.	936	521.00	27601.00	35
4 weeks.	None.	1 year.	260	288.00	7163.00	40	None.	None.	l. 1 to 3 years.	868	5.50	26045.50	35
5 months.	2 months.	7 months.	624	694.00	20494.00	29	19 days.	Not stated.	l. 4 years.	.....	.....	.....	34
1 year.	2 months.						4 years.	About 1 year.	l. 30 years.	468	2911.00	12177.40	51
4 months.	4 months.	1 year 1 month.	390	206.00	7706.00	50	1 week.	Not stated.	l. 2 to 3 months.	468	.....	14040.00	43
None.	None.	3 years.	.....	.....	24750.00		4 months.	Not stated.	l. 5 years.	676	307.00	20587.00	36
None.	None.	4 months.	.....	250.00			3 weeks.	2 months.	l. 5 months.	416	89.70	15481.70	27
20 months.	Not stated.	20 months.	468	1353.70	13053.70	40	4 months.	Not stated.	l. 4 months.	468	182.00	5330.00	63
10 months.	None.	3 years.	1300	870.00	16770.00	59	8 months.	Not stated.	l. 8 months.	524	528.20	25780.00	21
1 year.	None.	5 months.	400	758.00	11278.00	41	5 months.	3½ months.	l. 4 years.	780	2028.50	19968.20	44
9 months.	None.	12 months.	450	670.00	13725.00	33	1 year	Not stated.	l. 2½ years.	832	1019.00	25970.00	37
4 months.	2 months.	6 months.	370	.....	8510.00	33	4 months.	Not stated.	l. 4 months.	314	122.10	8380.30	41
6 months.	3 months.	1 year.	750	.....	18250.00	44	1 month.	2 months.	l. 9 months.	624	126.00	18846.00	34
3 months.	None.	6 months.	450	142.00	11977.00	40	1 year.	Not stated.	l. 13 months.	780	792.00	13272.00	56
3 months.	3 months.	8 months.	.....	.....	.....	55	3 weeks.	Not stated.	l. 1 year.	156	29.25	6347.25	20
6 weeks.	None.	18 months.	.....	.....	.....	54	3 weeks.	Not stated.	l. 3 months.	520	67 00	19307.00	27
8 months.	None.	3 years.	1000*	.....	30000.00	74	1 week.	1 month.	l.	390	22.60	11722.50	34
3 months.	2 months.	2 years.	300	.....	10800.00	23	3 months.	4 days.	l. 7 months.	286	103.50	11688.50	22
3 years.	2 years.	About 5 years.	225	1415.00	10527.50	20	Not stated.	4 months.	l. 4 months.	390	243.00	7965.00	51
3 months.	None.	1 year.	225	139.00	7609.00	30	Not stated.	Not stated.	l. 2 years.	.....	.....	.....	12
7 months.	5 months.	8 years.	750	751.00	15601.00	51	1 month.	6 weeks.	l. 1 year.	546	100.00	20411.20	34
9 months.	1 month.	10 years.	300	735.00	3215.00	71	2 months.	Not stated.	l. 2 years.	858	52.00	28537.60	32
6 months.	Not stated.	About 1 year.	375	.....	13875.00	26	9 months.	1 year.	l. 1 year.	468	566.50	21392.50	17
3½ months.	None.	2 to 4 months.	275	.....	7700.00	37	13 weeks.	Not stated.	l. 6 months.	624	608.00	22820.80	25
4 months.	2 years.	.....	.....	.....	.....	50	14 months.	2 years.	l. 4 years.	468	1013.00	13221.40	38
10 months.	6 months.	1 year.	.....	.....	.....	56	3 weeks.	Not stated.	l. 2 years.	780	78.10	31068.10	22
10 months.	7 months.	10 years.	.....	.....	.....	35	6 months.	Not stated.	l. 6½ months.	244	159.00	7479.00	33
2½ months.	None.	.....	600*	.....	24300.00	18	10 months.	Not stated.	l. 10 months.	468	402.60	17718.00	25
3 months.	3 months.	.....	500				6 weeks.	5 months.	l. 1½ years.	1170	435.00	31206.00	39
3 months.	None.	1 year.	.....	.....	.....	37	4 months.	3 months.	l. 8 months.	468	263.00	19217.00	20
4 months.	4 months.	.....	225	222.00	6139.50	38	1 week.	6 weeks.	l. 6 months.	468	77.50	15537.60	30
4 months.	15 months.	2 years.	450	500.00*	18725.00	20	3 months.	Not stated.	l. 26 years.	676	856.00	23299.20	29
3 weeks.	4 weeks.	7 weeks.	.....				3 weeks.	1 week.	l. 1 month.	780	62.00	25958.00	31
3 months.	None.	4 years.	300	142.00	7042.00	44	8 months.	Not stated.	l. 8 months.	660	832.00	18190.00	42
1 year.	1 year.	2 years.	500*	1425.00	19425.00	23	7 weeks.	Not stated.	l. 5 months.	416	77.00	16925.00	19
1 year.	Not stated.	About 2 years.	.....	465.00	.....	27	5 months.	Not stated.	l. 6 months.	364	163.00	14905.00	20
2 months.	4 months.	.....	600	228.00	21228.00	23	7 months.	Not stated.	l. 20 years.	764	439.06	31371.00	20
1 week.	None.	1 week.	375*	680.00	14555.00	25	1 year.	Not stated.	l. 1 year, 5 mos.	624	661.00	25933.00	20
2½ years.	None.	3 years.	450	.....	9900.00	43	1 week.	3 months.	l. 3 months.	520	52.20	13728.20	38
2 months.	None.	9 months.	1200	.....	27600.00	45	Not stated.	Not stated.	l. 2 years.	.....	10.00	.....	64
1 year.	Not stated.	18 months.	360	535.00	13855.00	24	3 months.	Not stated.	l. 8 months.	338	94.50		
8 months.	None.	2 years.	750	810.00	25710.00	32	5 months.	Not stated.	l. 2 years.	390	201.00	14631.00	24
2 months.	1 year.	.....	300	361.00	8251.00	42	7 months.	Not stated.	l. 7 months.	520	566.00	14242.00	25
2½ months.	None.	4 months.	600	146.00	15926.00	42	5 months.	2 weeks.	l. 5 months.	234	177.00	10707.00	17
None.	6 months.	18 months.	.....	885.60		66	2 weeks.	Not stated.	l. 1 year.	520	26.00	7098.00	62
3 years.	None.	3 years.	1800	8828.00	28328.00	66	Not stated.	Not stated.	l. 5 months.	.....	8.00	.....	22
17 months.	None.	17 months.	400	828.00	14108.00	31	2½ years.	Not stated.	l. 2½ years.	208	1069.00	9493.00	22
3 years.	Not stated.	3 years.	1200	3500.00*	39500.00	36	10 months.	Not stated.	l. 10 months.	780	636.00	32226.00	21
6 months.	None.	Not stated.	300	451.00	7351.00	46	5 weeks.	Not stated.	l. 8 months.	720	77.00	26710.00	24
8 months.	None.	1 year 2 months.	500	400.00	13550.00	40	1 month.	Not stated.	l. 2 years.	520	2.50		
3 weeks.	11 months.	1 year.	300	230.00	10190.00	32	2 years.	Not stated.	l. 2 years.	260	489.10	10109.10	25
1 year.	1 year.	2 years.	225	555.00	8880.00	23	3 years.	Not stated.	l. 5 years.	676	5663.00	28106.20	32
2 months.	5 years.	.....	300				5 months.	Not stated.	l. 2½ months.	420	210.50	18900.50	19
10 years.	.....	.....	.....				8 months.	Not stated.	l. 9 months.	364	359.00	13899.80	29
1 month.	Not stated.		450	84.00	16734.00	26	8 months.	Not stated.	l. 8 months.	520	411.00	16161.00	39
9 months.	None.	3 years.	.....	.....	.....	36	2 weeks.	Not stated.	l. 3 months.	1144	85.00	42641.80	25
3 months.	6 months.	1 year.	600	845.00	14665.00	44	10 months.	None.	l. 2 to 3 years.	360	495.00	7623.00	51
6 months.	1 year.	3 years.	500	820.00	7620.00	61	5 months.	None.	l. Over 2 years.	360	122.50	13514.50	24
1 year.	1 year.	2 years.	275	704.00	3069.00	68	18 months.	5 months.	l. 3 years.	306	400 00	8447.00	42
6 months.	Not stated.	2 years.	2000	1700.00			2 yrs., 9 mos.	3 months.	7 years.	720	1626.00	.....	44
3 months.	6 months	1 year.	.....	.....	.....	27	6 weeks.	None	6 weeks.	468	124.00	.....	30
5 months.	10 months.	15 months.	500*	455.00	17035.00	31	8 months.	1 year.	1 year, 8 months.	312	350.00	.....	40
3 months.	Not stated.	1 year.	572	452.00	9032.00	57	3 months.	1 year.	6 years.	.....	325.00		
2 years.	About 10 years.	1 year 7 months.	.....	572.00	.....	77	3 days.	None.	5 years.	.....	340.00		
4½ months.	None.	1 year.	600	.....	22200.00	24	4 months.	None.	About 5 months.	.....	135.00		

TABLE 1.—WAGE EARNING MALES—Continued.

Period of total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.
				$		
5 months.	Not stated.	1 year.	416	$ 668.00	.....	20
6 months.	3½ years.	8 years.	936	3530.75	.....	66
10 months.	None.	10 months.		47.85		
6 months.	Not stated.	6 months.		300.00		
4 months.	None.	1 year.		200.00		
2 months.	None.	3 years.	220	494.00	.....	39
3 months.	Not stated.	9 months.		236.20		
1 year.	4 months.	4 years.	720	1895.00	.....	26
1 year.	Not stated.	14 months.	234	978.00	.....	29
7 months.	1 year.	1 year, 7 months.	780	616.00	.....	66
1 year.	Not stated.	About 5 years.	300	500.00	.....	36
5½ months.	4 months.	9 months.	858	754.00	.....	30
10 months.	Not stated.	5 years.		689.15	16538.00	
6 months.	4 years.	10 years.	312	4788 00	.....	44
6 months.	2 years.	2 to 3 years.	1300	1640.00	40540.00	36
3 months.	2 months.	1 year.	720	206.00	21806.00	33
6 months.	None.					
1 month.	Not stated.					
3 years.	2 years.	3 years.	312	1200.00	3900.00	67
1 year.	Not stated.	About 7 years.	312	853.00	4603.00	58
6 mos., 1 wk.	10 months.	.....	312	549.20	11049.20	28
1 year.	Not stated.	13 months.	624	793.00	16200.00	38
2 years.	Not stated.	2 years.	624	1540.00	7540 00	62
6 months.	Not stated.	6 months.	312	227.00	10729.00	27
1 year.	6 months.	18 months.	.....	614.25	1440.00	
2 months.	None.					
1 year.	None.	.....	624	528.20	20028.00	21
1 month.	6 months.	1 year.		253.00	12852.00	
6 months.	18 months.	3 years.	1300	2505.00	29505.00	42
2 months.	2 years.	4 years.	468	2325.00	24825.00	34
5 weeks.	None.	5 weeks.	390	202.50	.....	37
3 months.	2 months.	6 months.	156	163.00	4063.00	40
1 year.	Not stated.	17 months.	156	524.00	10424.00	37
3 weeks.	Not stated.	About 3 years.	260	29.00	3779.00	53
4 months.	None.	18 months.	343	871.00	27871.00	35
1 year.	None.	2 years.	468	555.00	14055.00	34
1 year.	Not stated.	1 year.	720	2100.00	22500.00	29
10 months.	None.	10 months.	432	1130.00	19994.00	23
1 year.	None.	1 year.	480	8331.00	.....	53
2 years.	5 years.	7 years.	.....	1730.50	11530.00	

Total number of males, 258.

period of partial disability, disability when it occurred being total from the onset.

The longest period of complete disability reported was ten years; in one case each the period was six, five and four years; in six cases over three years; in six cases over two years; in eighteen cases over one year. The maximum yearly income interrupted by total disability was $1,300. The greatest actual loss incurred incident to the disease was in a man of 66, who was totally disabled for three years, and suffered during that time a total actual loss of $8,828 and a potential loss of $28,628. The remaining economic loss appears in the succeeding tables. (Tables 1 and 2.)

A separate table was given for females, which may be of interest for comparison. Among wage-earning females the maximum annual income was $1,200, the longest period of partial disability was one year, the longest period of complete disability one year. The greatest actual loss incurred was $2,335, and the greatest potential loss was $36,000 in a female aged 36 years, whose annual income was $1,200, and who was totally disabled for two years. The next greatest potential loss among female wage-earners was $28,360 in a female dead at the age of 37 years, whose annual income was $800, and who was totally disabled for one year. (Table 2.)

All of the figures given on these tables and charts must be understood to represent a minimum with variable limits. It is naturally impossible to determine all the elements entering into a calculation of this character, though I believe that the total approaches accuracy in the majority of instances. It must be further understood that even when the estimate is complete a certain margin of profit must be allowed between the income received by the individual and its value to the community or state.

TABLE 2.—WAGE EARNING FEMALES.

Period of total disability.	Irregular work at reduced wages.	Duration of disease to time of death.		Annual income.	Total money loss incurred.	Potential loss.	Age.
3 weeks.	Not stated.	1 year.		$ 250	$ 178.70	$ 8478.70	30
4 months.	None.	4 months.		416	592.00	17440.00	21
3 years.	3 months.	3 years.		300	2335.00	10225.00	39
9 months.	None.						
2 months.	None.	.....		270	100.00	7340.000	33
4 months.	None.	7 months.		600	434.00	16214.00	42
7 months.	None.	.....		450	1489.05	12739.05	38
3 months.	6 months.	2 years.		350	.....	12600.00	24
7 months.	None.	.....		75	.....	3300.00	13
7 months.	None.	7 months.		150	334.00		
3 months.	None.	1 year.		225	102.00	8659.00	25
5 months.	None.	10 months.		156	.....	6318.00	18
1 week.	None.	Several years.					
2 months.	None.	3 months.					
2 years.	None.	3 years.		208	735.00	8016.00	27
3 months.	3 months.	Not stated.					
3 months.	Not stated.	4 months.		65	71.00	2931.00	13
6 months.	Not stated.	1 year.		260	.....	9360.00	23
5 months.	Not stated.	Not stated.		300	785.00	10745.00	31
2 years.	Not stated.	18 months.		225	382.00	4807.00	52
1 year.	6 months.	1 year.		105	311.00	2380.00	48
6 months.	None.	8 months.					
18 months.	Not stated.	1½ years.		225	540.00	7402.50	36
None.	None.	4 months.		300			
12 months.	None.	18 months.		120	120.00	4980.00	19
5 months.	None.	13 months.		225	230.00	7700.00	30
7 months.	None.	14 months.		150	.....	6075.00	21
3 months.	None.	About 1 year.					
6 months.	2 months.	2 years.		225	410.00		
2 months.	None.	.....		240	93.00	8378.00	32
6 months.	None.	2 years.		275	283.25	11420.75	22
6 months.	1 year.	8 to 10 years.		200	519.15	5119.15	44
6 months.	None.	6 months.		260	334.00	10864.00	19
4 months.	3 months.	7 months.		225	272.00	7742.00	32
4 months.	None.	.....		264	141.00	9381.00	23
1 year.	None.	2 years.		900	1360.00	28360.00	37
3 months.	Not stated.	1 year.					
6 months.	None.	1 year.		300	435.00	11555.00	26
8 months.	Not stated.	Not stated.		255	.....	11475.00	16
5 months.	1 month.	6 months.		.....	.....		27
2 years.	1 year.	3 years.		1200	.....	36000.00	36
3 weeks.	6 months.	1.	6 months.	130	147.20	14463.20	32
7 months.	Not stated.	1.	8 months.	208	141.00	6443.40	36
9 months.	6 weeks.	1.	3½ years.	104	228.60	2703.80	48
3½ months.	3 weeks.	1.	8 months.	364	314.00	12398 80	32
7 months.	Not stated.	1.	7 months.	364	119.00	6161.40	54
4½ years.	1 year.	1.	5 years.	208	389.90	3132.30	46
1 week.	Not stated.	1.	5 years.	78	25.50	3574.50	19
3 months.	Not stated.	1.	10 months.	130	70.00	5985.00	25
2 months.	Not stated.	1.	7 months.	247	119.00	9307.40	26
2 months.	2 months.	1.	5 months.	377	100.50		
9 months.	Not stated.	1.	1 year.	78	180.90	4252.50	14
8 months.	9 months.	1.	9 months.	360	235.00	19027.00	16
8 months.	Not stated.	1.	8 months.	286	224.00	10843.00	28
5 years.	Not stated.	1.	30 years.	156	891.00	3979 80	52
3 mos., 1 wk.	Not stated.	1.	3 months.	182	90.00	6860.40	29
2 months.	Not stated.	1.	3 months.	182	34.00	8315.00	19
5 months.	Not stated.	1.	5 months.	130	60.00	3889.00	34
10 months.	Not stated.	1.	1 year.	104	83.75	3952.55	24
2 months.	2 years.	1.	5 years.	204	437.00	4476.20	53
4 months.	Not stated.		4 months.	416	592.00	17440.00	21
3 weeks.	Not stated.		1 year.	108	178.75	3764.35	30
6 months.	Not stated.	1.	9 months.	48	95.00	2255.00	13
2 months.	Not stated.	1.	2 years.	208	83.00		
2 years.	Not stated.	1.	3 years.	208	736.00	8432.00	27
3 weeks.	None.	1.	5 years.	.....	.....	.....	25
1 month.	Not stated.	1.	1 month.	.....	.....	.....	22
2 weeks.	5 weeks.	1.	2 years.	236	27.00	8759.00	23
10 months.	Not stated.	1.	6 to 12 mos.	.....	.....		24
4 months.	1 year.	1.	1 yr. 11 mos.	288	454.42	4371.22	59

Total number of females, 70.

The average working period, the periods of disability, the curve of average wages are shown for consumptive wage-earners in the following series of six charts:

The first of these series (Chart 5) represents the average working period of 69 males decedent in 1903, showing the two terminal periods of partial and complete disability. Below are shown the average curve of wages of these periods and the maximum wages received by any one of the 69 persons. The band at the top represents the average working period of these 69 males. The first zone represents the period of partial disability and the second zone the period of complete disability. The vertical lines represent yearly periods.

By a study of the chart will be seen the average working period for these 69 males was eighteen years and six months. The period of partial disability then appeared, averaging eleven months, one week, followed by a period of complete disability of eleven months and three weeks, lasting up to the time of death.

The lower curve represents the average daily wage corresponding to these periods, which in this special series was $1.65 during the period of their earning capacity, and the average of $0.75 during the period of partial disability, and remaining at 0 from then on to the time of death. The upper curve indicates the maximum daily wages of this series. This man was aged 36 years at death, had a working period of fifteen years six months up to the time his earning capacity was first impaired by his disease; his daily wages were $3 to $6 during this period, declining during the period of partial disability to from $1.25 to $1.50 per day. This period of partial disability lasted two years, and was succeeded by a period of complete disability from two to six months, lasting up to the time of death.

Chart 6 gives the average working period of 123 males decedent in 1903, in whom there was no period of partial disability (disability when it appeared being complete from the onset). The average working period appearing on this chart is nineteen years, which is succeeded by an average period of complete disability of one year two months.

twenty years, followed by a period of partial disability of ten months and one week, and a period of complete disability which had lasted on an average of one year, eight months and two weeks up to the end of 1903.

The average original wages of persons of this series was $2.50, the average reduced wages during the period of partial disability $0.75.

The next three charts of this series deal with the average working period and average wages of consumptive wage-earning females.

Chart 8 indicates the working period of eight wage-earning females decedent in 1903, showing two terminal periods—one of partial and one of complete disability. The curve of average wages for the same period is shown below. The average wages range under $1 per day for this series, declining to a little over $0.50 per day during the period of partial disability. The average working period of this series is twelve years four weeks, the period of partial disability eleven months one week, and the period of complete disability four months one week.

The comparison of these three charts with the three

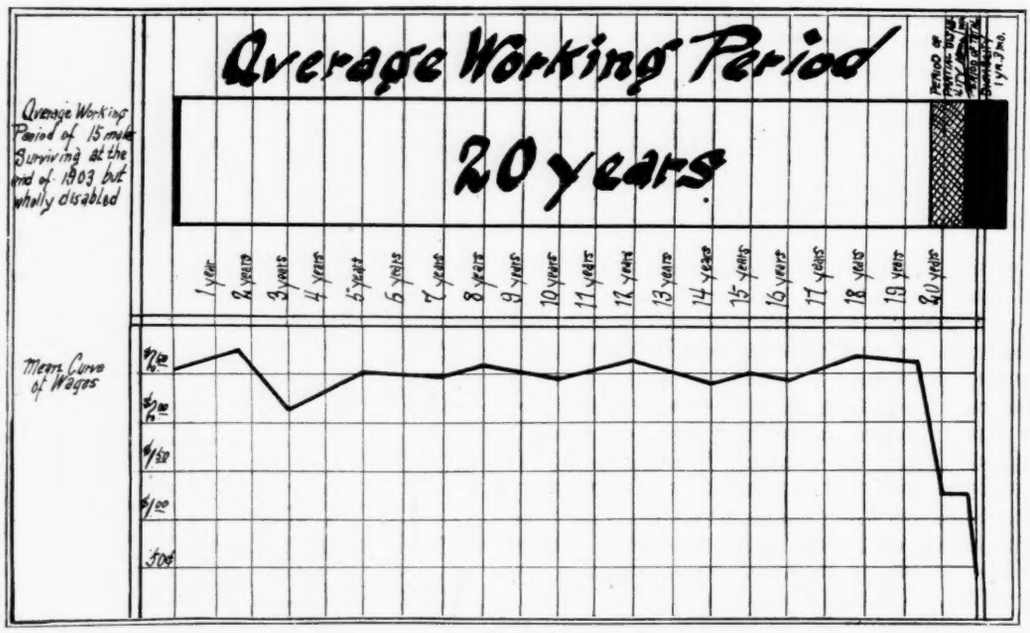

CHART 7.

As naturally appears in the chart, this series represents a class much lower in an economic scale, as the majority of persons making up this series worked continuously, pursuing their regular or irregular avocations until completely disabled and showing no period of partial disability.

The average daily wages during the nineteen-year working period ranges somewhat below $1. The majority of persons in this series began work at a much earlier age than in the preceding series, and hence their average working period was comparatively less than really appears on the chart. The maximum daily wage among these individuals was $6 per day, the working period of forty-five years, the period of complete disability three years and the age at death 66 years. The length of this curve has been shortened by a little over one-half in order to allow it to appear on the chart.

Chart 7 shows the average working period of fifteen males surviving at the end of 1903 but wholly disabled. The curve of wages for the same period is shown. The working period of the individuals of this series averages

preceding charts shows a number of interesting peculiarities in the working periods, periods of disability and curves of wages of females as compared to males. The small number of females showing any period of partial disability is peculiar to the sex, as an occupation once interrupted in the female by a course of chronic disease is seldom resumed. Change of occupation is also infrequent. The short average working period is also striking. Chart 5 may be taken as a fair average in which the working period is only nine years eight months, and is contrasted with eighteen years six months for the same class of consumptive wage-earning males. The shortness of the period of complete disability among the wage-earning females is probably accounted for by the fact that the majority of female wage-earners are very much younger than the male, and hence their disease takes a more rapid course.

Chart 9 indicates the average working period of 53 females decedent in 1903, in whom disability was never partial (being complete from the onset). The terminal period of complete disability is shown at the curve of

average wages. The average working period of these 53 females is nine years eight months; the period of complete disability is eleven months and three weeks. The average daily wages range below $0.50.[1]

The maximum wage-earner among these females was 37 years old at the time of death, having had a working period of eighteen years, during which time her daily income was $3, declining to 0 during the one-year period of complete disability.

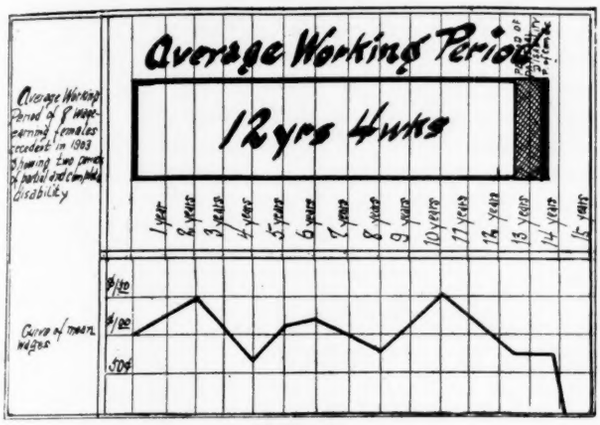

CHART 8.

Chart 10 is the average working period of six females surviving with tuberculosis in 1903, but completely disabled. There was no period of partial disability among these cases. The curve of average wages is shown for the working period. The average working period among these females until completely disabled was seven years, five months, two weeks.

The average period of complete disability up to the end of 1903 had lasted seven months and three weeks. The curve of average wages had exceeded $1 during this period.

A study of the course of each individual case of tuberculosis from the economic standpoint shows many interesting relations. On the four succeeding charts the economic course is considered for each individual after each has reached the stage of impaired earning capacity. The 79 cases considered on these charts have been divided into four classes, according to the institutions or societies under whose care they were reported. Each case is traced from the time of its economic impairment through the zone of partial disability, through the zone of complete disability to its final termination either in death or in recovery.

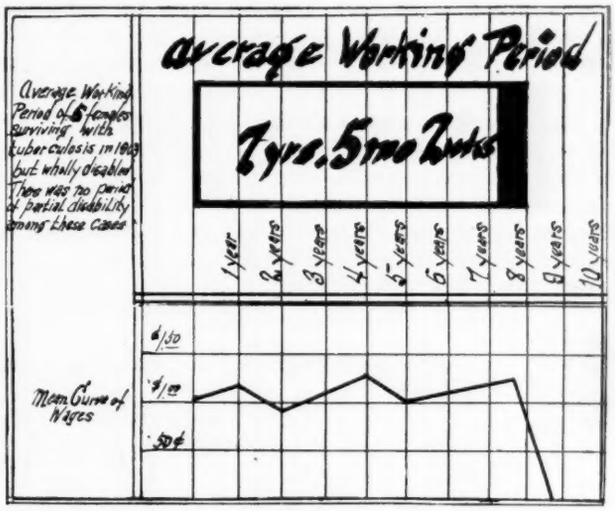

CHART 10.

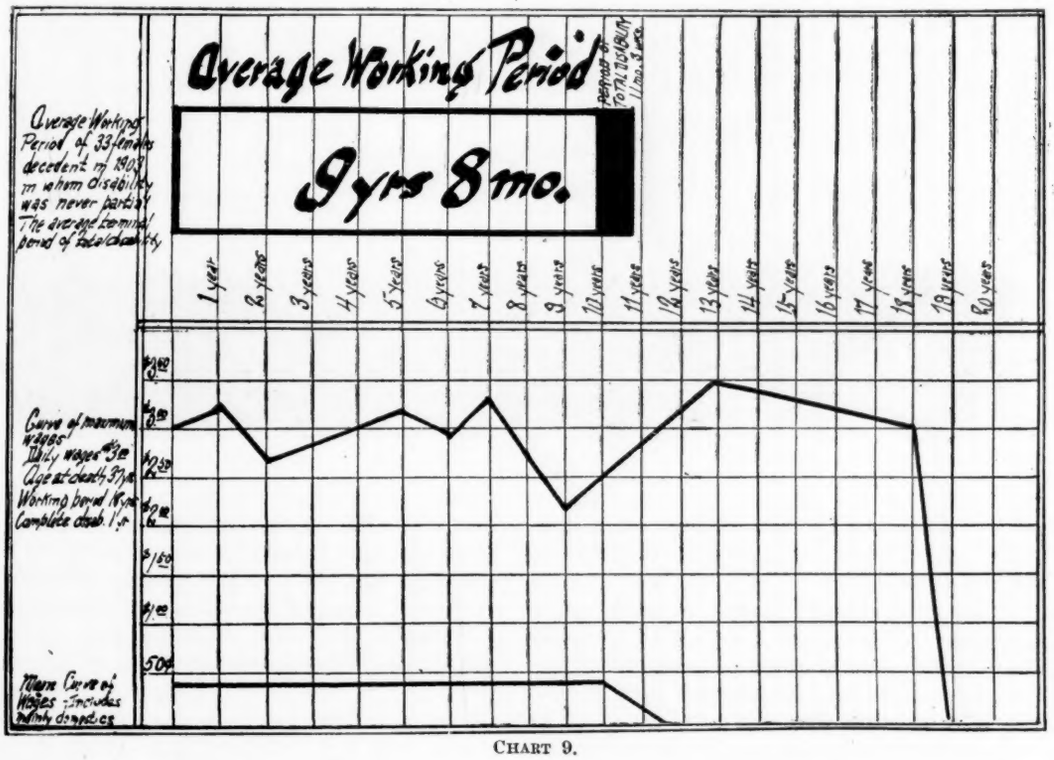

CHART 9.

Chart 11 represents fifteen cases reported by the Johns Hopkins Hospital terminating fatally, and shows the individual economic course for each individual. The appearance of each case on the chart notes

1. This class includes a number of domestic servants in whom only the actual money wages is computed and no allowance made for board or lodging.

its entrance in the period of partial or complete disability. The center band indicates the zone of partial disability, the shaded band below complete disability and the black band at the bottom of the chart indicates the zone of death.

The duration of each case in each of the zones mentioned is indicated by vertical lines, which correspond to the months. The duration of each case up to the time of its entrance into one or the other of these zones is very variable. The longest duration before the period of economic loss noted on the chart is 116 months, Case No. 3. In one case it was over six years and in one case over three years; two cases over two years and in one case over one year. Six cases, or a little over 40 per cent., the duration was over a year before there was any impairment of their earning capacity. In four cases the economic disability appears synchronously with the onset of the disease. The longest period noted of any case in the zone of partial disability is over two years.

By examination of the chart it will be seen that 9 of these cases passed at once into the zone of complete disability, and did not remain at all in the zone of partial disability. In Case No. 7 the period of partial disability was only two months. He then remained in the zone of complete disability for six additional months, after which his course terminated in death. The shortest period of complete disability was two weeks in Case No. 4, which, after being partially disabled for seven months, became completely disabled only two weeks before his death.

Chart 12 of this series shows the economic course of 15 cases of tuberculosis reported by Bay View Asylum among wage-earners, 11 of which terminated fatally. Bay View Asylum receives the chronically sick and disabled of the city of Baltimore. No especial provisions are made for the treatment of the consumptives, and they can seldom be induced to enter the Municipal Hospital until the advanced stages of the disease has interrupted totally their economic powers. Nine of these cases had no period of partial disability, but passed at once into complete economic disability.

The longest duration before the period of economic loss among the individuals of this series was eight years. The next longest period was six years. In 9 cases the appearance of economic loss was apparently synchronous with that of the disease.

The class comprising this series represents on the whole a low economic level. A large proportion of these cases occurred among negroes, stevedores, berry-pickers and others having no regular occupations. Case

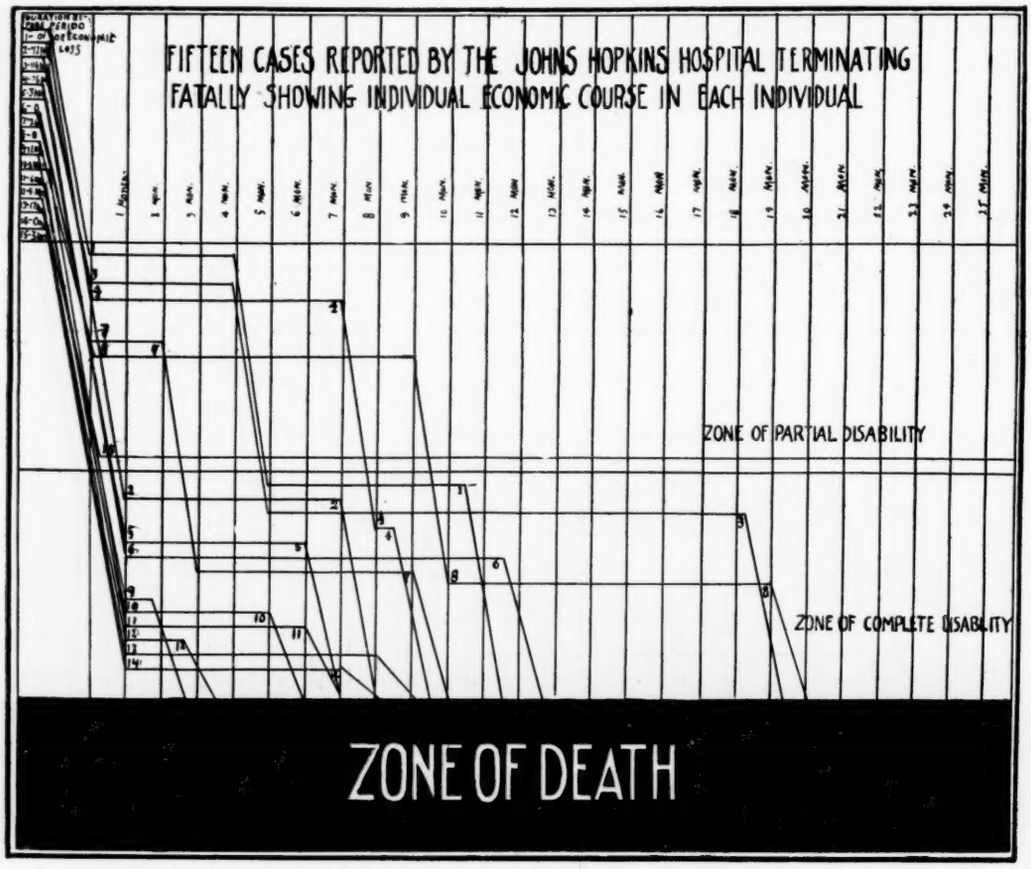
FIFTEEN CASES REPORTED BY THE JOHNS HOPKINS HOSPITAL TERMINATING FATALLY SHOWING INDIVIDUAL ECONOMIC COURSE IN EACH INDIVIDUAL
ZONE OF PARTIAL DISABILITY
ZONE OF COMPLETE DISABILITY
ZONE OF DEATH

CHART 11.

No. 1 of this series shows the least period of partial disability, and apparently takes a very rapid downward course at the onset of his disease, remaining only one week in the zone of impaired earning capacity, and only two months and one-half in the zone of complete economic disability up to the time of his death. Two cases of this series were completely disabled over two years; in 3 cases the economic course is not complete, as the cases were still living, although in the advanced stages of the disease in 1903.

Chart 13 of this series represents the economic course individually shown of 15 cases reported by the Instructive Visiting Nurse Association, 9 of which terminated fatally. The series of cases shown on this chart includes mainly the very poor wage-earners, who have been reported by the various charitable societies of Baltimore usually after a very severe struggle to

maintain themselves in the upper zones of economic usefulness. The effect of this is plainly shown on the chart. In 11 of the 12 cases reported, the economic disability was complete from the onset and in only one case was there a period of partial disability. This patient, No. 1, who had maintained himself for six months in the zone of partial economic usefulness, sank into a lower level, and was completely disabled for over a month at the end of 1903.

This chart represents also the only case in the series in which there was return to a higher economic level after the original decline. This patient, after passing at once to the zone of total disability, in which he remained for three months, was able to resume light work for the period of three weeks, and was still working at the end of 1903.

Chart 14 of this series represents the economic course individually shown for 27 cases reported by the Charity Organization Society and the Association for Improving the Condition of the Poor among wage-earners, 15 of which proved fatal. This series represents largely the same class of cases from which the preceding series was drawn, although showing on the whole a class much higher in the physical and economic scale.

In 17 of these cases, or over one-half, however, there was no period of partial disability. The longest duration for the disease before the appearance of economic loss in this series was nine years, in five cases over four years, one case over two years, in three cases over one year. In 9 cases the period of economic loss was synchronous with the onset of the disease. The average period of partial disability among these cases was one month and one-half; in two cases it was over two years. The shortest period of complete economic disability was two months and one-half, and in five cases it was over two years.

The economic course was not determined in six individuals, who were still surviving at the end of 1903, though in the advanced stages of the disease.

Chart 15 of this series shows the average economic course of consumption in the four classes of cases reported on the preceding four charts. The shortest average in the period of partial disability is shown by the Charity Organization Society and the Association for Improving the Condition of the Poor, average one year four months. The average period of partial economic disability reported in cases from Bay View Asylum is nine months and nine days; for Johns Hopkins Hospital, eight months and six days; the Instructive Visiting Nurse Association, one week and one day. The longest average of complete disability was reported from Bay View Asylum in the average of two years, six months one day; Charity Organization Society and Association for Improving the Poor, one year; Instructive Visiting Nurse Association, eight months, one week, five days; Johns Hopkins Hospital, five months three days.

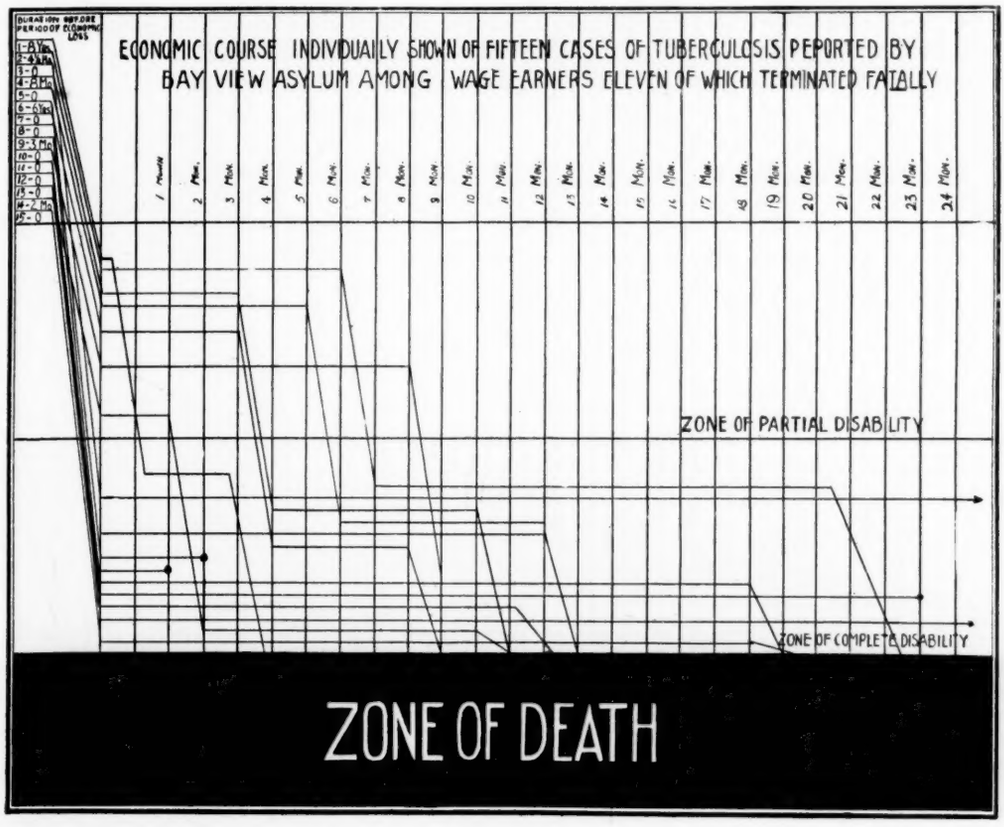
ECONOMIC COURSE INDIVIDUALLY SHOWN OF FIFTEEN CASES OF TUBERCULOSIS REPORTED BY BAY VIEW ASYLUM AMONG WAGE EARNERS ELEVEN OF WHICH TERMINATED FATALLY
ZONE OF PARTIAL DISABILITY
ZONE OF COMPLETE DISABILITY
ZONE OF DEATH

CHART 12.

There are few special conclusions to be drawn from this economic study, not self-evident, other than the fact that it is possible to determine accurately one item of the many losses due to pulmonary consumption, viz., the personal loss falling on the individual incident to his disease, and to determine from this the potential loss caused by the economic elimination of the individual from the field of production.

I have briefly reviewed a few of the fallacies and inaccuracies resulting from general studies made without reference to the factors peculiar to tubercular diseases, and I hope to have sufficiently indicated the simplicity

and facility with which economic studies can be made on the consumptive individual and the superior accuracy of the conclusions based thereon.

DISCUSSION

ON PAPERS OF DRS. PRICE AND KNOPF.*

SURGEON-GENERAL STERNBERG, Washington, D. C., said that in Washington the great difficulty is that all legislation must come through Congress, and it is extremely difficult to get action. Grand public structures are built there and elsewhere, but a very earnest effort to get $150,000 for a tuberculosis hospital failed. There is nothing of that kind in the district, although patients are scattered over the city who should be treated in sanatoria, but are unable to secure proper treatment on account of failure to get an appropriation from Congress for such an institution. Dr. Sternberg asked members of the Section to use their influence with members of Congress in impressing on them the necessity of doing something for Washington, which, unfortunately, has a higher death rate from tuberculosis than any other city in the country, with the exception of Los Angeles and Denver, where people go to die. This is due to the large colored population, and to the bad housing conditions among the lower classes. There is an enormous infant mortality in Washington, and though it is a rather disgraceful thing, Dr. Sternberg thinks the truth should be known. The infant mortality is higher than that of New York City, and the general death rate is much higher than that of New York City or of Chicago, although not so high as that of some of the southern cities. This high death rate is a result of the very large colored population, and of the insanitary conditions under which many of them live. For years physicians have been trying to get a law providing for the condemnation of insanitary houses. There are large numbers of frame shacks down on the ground, without any ventilation under the floors, and without any water in the house, and without sewer connections. These buildings are hidden away in the centers of the squares, and people living on the main streets are often unconscious of the fact that there is such a population on these interior alleys. That is where the "lung blocks" are. During the past winter physicians were able to get through the house a very satisfactory bill. The bill went to the Senate and was referred to a committee, the chairman of which was, unfortunately, down on the health officer. He opposed the bill and the whole thing has been knocked endways because he has brought in another bill as a substitute which is unsatisfactory to the physicians of Washington.

DR. CRESSY L. WILBUR, Lansing, Mich., stated that usually vital statistics fall short of reaching their full degree of usefulness. Physicians are content if they can compare the death rates, and the study of disability and loss of time is something that few vital statisticians have gone into. Dr. Price's figures will convince members of councils and legislatures that it is important to guard the public health. Dr. Wilbur called attention to the way in which the committee has undertaken to counteract the pernicious and false adver-

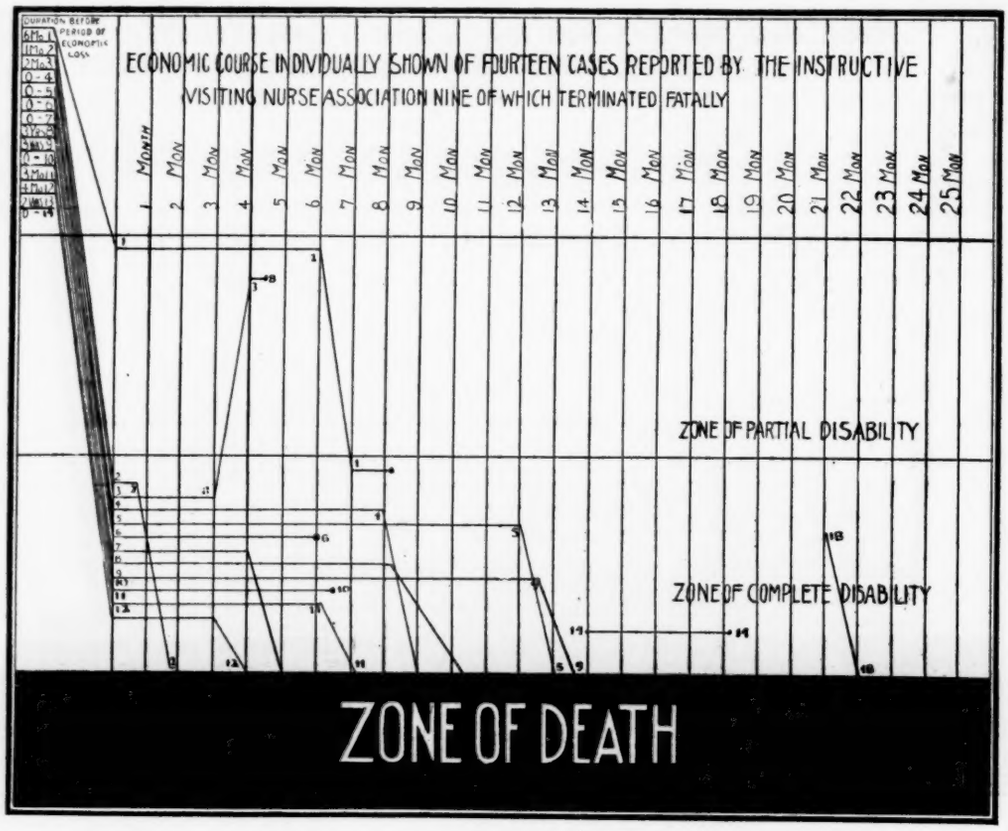

CHART 13.

tising in regard to specific medical treatment for consumption. He is afraid, however, that this circular will not appear with the frequency and force necessary to warn the public. These advertisements appear every day, and consumptives are led to use these methods of treatment when, if they resorted to local medical advice, they might be in time to prevent the occurrence of more serious symptoms. In Michigan there were one or more of these institutions, and Dr. Wilbur mentioned one rather pitiful case of a mother whose child was in a very advanced stage of the disease, who applied to the managers of one of these institutions, and afterwards tried to get a death certificate from them. They were not in a position, under the medical registration law, to issue a certificate, as they could have been punished in court for giving medical advice and treatment without being registered physicians.

DR. J. M. BARRIER, Delhi, La., stated that this subject is of great interest to people in the south. Tuberculosis is much more prevalent in the negro race than in the white race. During the last few years, since the negroes are leaving the

*The paper by Dr. Knopf appeared in THE JOURNAL Feb. 11, 1905.

agricultural districts and are flocking to the cities, tuberculosis is rapidly increasing, not only in the large towns of Louisiana, but in the smaller towns, and very little has been done toward improving these conditions. A committee is appointed at nearly every meeting of the state society to make an investigation and to report, and that is about all that is accomplished. There is no question but that the sanatoria treatment is the treatment for consumption. The profession has accomplished much, and the subject has been studied from almost every standpoint. The public has been kept informed of the improvements in the manner of treating this disease, not only as a disease affects the state from an economical standpoint, but from a social standpoint, and from nearly every standpoint. The only way in which physicians can get what they need is just simply by making a demand for those things; in other words, going into politics. Dr. Barrier said that, of course, nothing can be accomplished, politically speaking, in Louisiana until the profession is better organized, and until a sufficient number unite and can go to the politician and say to him that they want certain things done. For instance, in Dr. Barrier's county, when a man is running for the legislature they say to him that the parish has passed a certain resolution and ask him how he is going to vote when this question comes before the house. The politician is very much like putty, and when it comes to getting votes he will change his platform if it is necessary. If physicians will simply get together and demand what they want they will succeed in accomplishing good results.

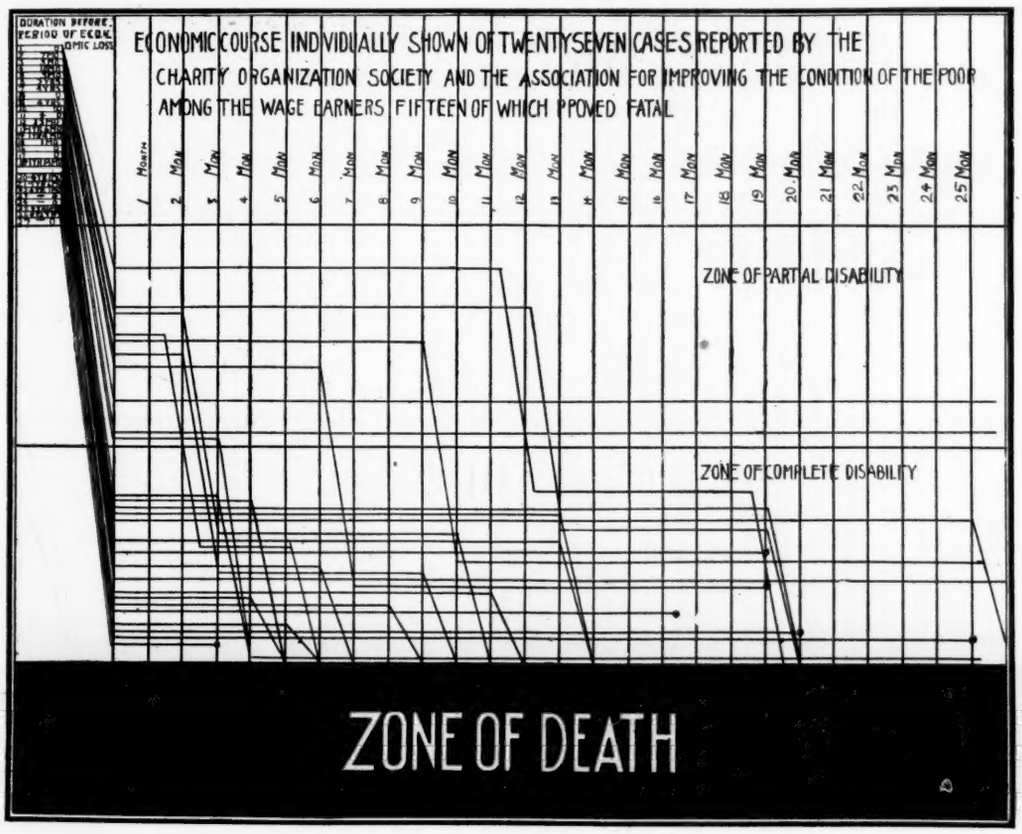

CHART 14.

DR. C. C. BROWNING, Highland, Cal., stated that Dr. Knopf, in order to accomplish his results with the kind of politicians he describes, recalls the maxim of David Harum, which was: "Do to the other fellow as he would do to you, but do it first." He should get hold of the politician last, or some other fellow will get him and mold him in his own way. Dr. Browning called attention to the matter of individual effort. He said that he realizes when looking over the splendid laws of some of the eastern states that the sun rises first on the people of the east. It reaches California later, that is, in regard to sanitary laws. He was glad to say, however, that the twilight is breaking over the mountain tops, and when the next legislature convenes the sun will have fully risen. An honored member of the medical profession is governor of the state, and one of his first acts was to appoint an efficient state board of health. In the absence of adequate laws efforts have been made to accomplish something by organized effort. Southern California is one of the places where tuberculosis patients go to die; that is to say, many go and do die, and Dr. Browning referred to the cruelty that is perpetrated by physicians in sending patients out there without money, without friends and alone. Young people come there and go into tents, sheds and shacks, or any place that will afford them shelter. Two sisters went there with less than $5 between them, because they had heard that orange packers got from $1 to $1.50 per day. Under the auspices of the Southern California Medical Society an organization was perfected in December, 1903, known as The Anti-tuberculosis League. They have accomplished their work in this way: One of the members of the committee, who was in touch with one of the county board of supervisors, obtained from the superintendent of public instruction the number of families in the county represented in the schools. With that information he went to the board of supervisors and explained to them the nature of the literature that it was proposed to publish, and at the close of this conversation with the supervisors he suggested that the superintendent of public instruction might distribute these circulars as he visited the schools, which he does each year. The president of the board inquired how many would be needed for the county and was told. A motion was immediately made that the board pay the expense of printing these circulars. Now, within six months, four counties have paid for 120,000 of these circulars, and they are being distributed through the schools. The interest of the county superintendent of schools is very valuable, because at the teachers' convention he may call some competent physician to deliver an address on how these circulars should be used. That is one

way of getting this matter before the people in a manner in which it will be read, because the parents are apt to read what the children bring home from school. If the people become sufficiently interested in this subject then it will not be the physician alone who will demand legislation, but the people at large. In reply to a question Dr. Browning stated that tuberculosis is not very prevalent among natives of Los Angeles, but, of course, a certain number contract it, and nearly all of these patients die quickly.

DR. H. M. BRACKEN, Minneapolis, said that recently he visited a state sanatorium in course of construction. It was most disappointing—a big brick building, four stories high, located in the woods. It reminded him more of an asylum or prison than of a place in which to care for incipient tuberculous individuals. He visited also a municipal sanatorium that was all it should not have been. Each of these institutions cost about $225,000, and each will accommodate about 80 patients, which means a cost per patient for housing of nearly $3,000. There are but few cities where the sanitarian can secure any great amount of assistance from the municipal authorities to aid in this work. Medical men working with laymen through independent organizations will accomplish more good than is possible through any municipal government alone. An organization under the control of an unselfish board of directors often can expend money to much better advantage than can municipal or state officials. In Pennsylvania much has been done in caring for the tuberculous, although no sanatorium as yet has been established by the state. This work has been carried on by the charitable organization known as "The Free Hospital for Poor Consumptives." The state has given some money to this organization, which has been expended to much better advantage, and has accomplished more than could have been accomplished through a state institution. There is a tendency to spend too much money per capita in the housing of state tuberculous patients. When there are good organizations in cities and states, made up of laymen and physicians, they can then go to the governing powers and ask for aid. If, under such circumstances, these bodies give only money, more good can be done with it than if they were to give institutions and appoint the people to govern them. The state authorities should be urged to provide for tuberculous individuals in state institutions. Very few, if any, states have made proper provision for the care of their tuberculosis wards. A few years ago Dr. Bracken visited a state institution where tuberculosis was very general, indeed, the infection passing from one inmate to another. This was in an overcrowded reformatory. A farm plan might easily have been adopted for that institution and, in that way, much might have been done to prevent general infection of the inmates.

DR. W. G. YOUNG, Washington, D. C., asked what has been the effect of the establishment of different sanatoria and homes for consumptives in different localities, on the inhabitants or the natives of those localities. It seems to him that if an individual is afflicted with such a dangerous source of infection that he could be legally removed from a tenement district, that the segregation of such individuals in homes provided for them is likely to be a source of trouble, and unless some rules are adhered to it must be dangerous to the district. Dr. Young agreed with Dr. Sternberg in saying that the members of the Section can help very much as a Section and as individuals. Citizens of Washington have no senator and no vote. In other words, they are simply blank units, and will have to ask the help of the outside boards.

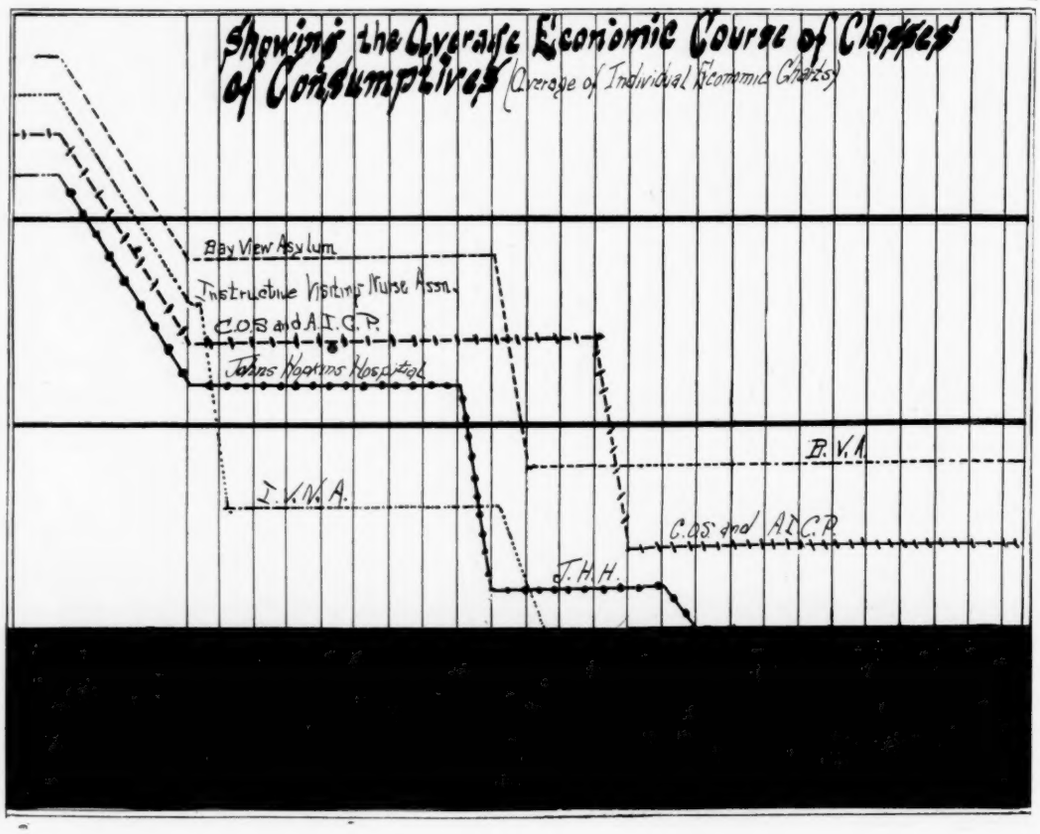
Showing the Average Economic Course of Classes of Consumptives (Average of Individual Economic Charts)
Bay View Asylum
Instructive Visiting Nurse Assn.
C.O.S. and A.I.C.P.
Johns Hopkins Hospital
B. V. A.
I. V. N. A.
C.O.S. and A.I.C.P.
J. H. H.

CHART 15.

DR. G. A. HARE, Washington, D. C., said that it seems to him a most important thing that a crusade of education be waged against tuberculosis. The only hope for success is by continual agitation. The facts must be brought before the people who are interested. Fifteen years ago fear of tuberculosis drove him west, and he has seen people by the thousands go into California only to die—most of them died from lack of knowledge. The economic problem has been forced on his mind many times, and he feels certain to-day that if a campaign of education is waged, as has been done in Michigan, New York and other places, great good will be accomplished. Dr. Hare does not believe that Dr. Barrier's plan is

a practical way to control this problem, because politics are influenced very largely by the present system of spoils, and there is not very much spoils for the politician in this proposition. It seems to Dr. Hare that if physicians would educate the people by giving them the facts and the results of the experiments that have been made, they could secure their co-operation in this work. Let it be known that every resident of every state is threatened by the present insanitary conditions because the poor and the unfortunate people in their district who suffer from tuberculosis are not properly provided for; and this very fact of itself will be sufficient, if it is made a matter of common knowledge, to secure a great deal of relief from philanthropic people and to mold a public sentiment that will demand legislative relief. The indirect economic side of this question is enormous—the deprivation to the family because of the lessened amount of wages earned, the impoverished feeding, the insufficient clothing, all of which lessen the vital resistance to this disease, and increase the dissemination of tuberculosis poison. These are some of the indirect effects which are in themselves extensive factors.

DR. S. A. KNOPF said that when a national association for the purpose of fighting tuberculosis in our country was formed, a distinguished professor of Johns Hopkins said that in the solution of the tuberculosis problem we must look for enthusiasm to the young men in the profession. Dr. Knopf indorsed everything said by Surgeon-General Sternberg concerning tuberculosis in the capital. The readers of the daily papers of New York were very much impressed by an account recently published by Jacob Riis, one of the most distinguished practical philanthropists in New York, of visits he had made to those dark alleys located behind the fashionable residences in Washington, and the picture he drew of what he had seen was appalling. In the miserably built shanties there were six and eight people living in one room, diseased and healthy, male and female, indiscriminately huddled together. With the surgeon general, Dr. Knopf said that he earnestly appealed to every American citizen to be helpful in seeking to remedy these conditions, as a result of which tuberculosis is so frequent among the colored population in Washington. Dr. Knopf said that his paper was so long that he did not relate his experience of what is done by some of the unscrupulous quacks. All had heard of the many so-called Koch concerns. A poor woman came to Dr. Knopf for examination and treatment in the hope that he could do something for her. He asked her about her family physician; she said she had none. He then asked her who had been treating her, and she replied that the Koch people had been treating her for the last three months and had taken all her money. Dr. Knopf examined her and found that she was in the last stage of consumption. She told him that they had offered to continue treating her for nothing if she would sign a certificate to the effect that she had been suffering from tuberculosis in an advanced stage and that the Koch concern had cured her. The poor woman told them that poor as she was she could not commit such a fraud on the public. That gives an idea as to how these advertising "sure-cure" concerns get their certificates. Dr. Knopf agreed with Dr. Barrier that physicians should go into politics. He thinks that their duty is to go into politics, and where politics is impure to purify it, and in that way to make their influence felt for the good of the community. He does not think that it is at all degrading for the physician to enter politics for the good of his fellow-men. In reply to questions he stated that he began his medical career in Los Angeles, Cal., and there first became impressed with the necessity of doing something else than relying on the climate. In the county hospital of Los Angeles the wards were constantly full of consumptives; they had all gone to California in the belief that the glorious climate of that great state would cure them. They went there with nothing, or with only from $10 to $25 in their pockets; of course, most of them too far gone, not able to work nor able to take proper care of themselves in time. Never was he more impressed with the criminality of sending patients so far away from home instead of allowing them to die in the midst of their own family than when serving as interne in the Los Angeles County Hospital. Only selected cases should be sent to Colorado or to California. Dr. Knopf believes in the climatic advantages of certain regions, but also believes that the majority of patients, who are of the laboring classes, must be treated in the same climate, or nearly the same climate, in which they have contracted tuberculosis, and in which they desire to remain after their restoration to health. It happens not infequently, when a patient is sent to California and he gets well, that he comes back in a year or two, and the result is a relapse. Such patients, if sent to California or to Colorado, should be told to stay there. There are relatively few patients who can return with safety to the eastern climate. He certainly believes in educating school teachers. The New York Committee on Tuberculosis of the Charity Organization Society gave a number of lectures before the Teachers' College of the Columbia University. A tuberculosis hospital or sanatorium, in order to do the most good, should be established near a large city. It should preferably be situated on porous soil where there is as little traffic as possible, and should have protection from cold winds. Experience has taught us that the large pavilion system is the most convenient and best way to build a sanatorium. If institutions where many consumptives are kept are equipped and managed according to the modern conception of the prevention of tuberculosis, there is no danger. In five German sanatoria, which have been established for fif y years, the mortality from tuberculosis in the surrounding villages is about one-third less than it was before the establishment of these institutions. The inhabitants around the sanatoria almost unconsciously adopt the hygienic methods of the patients in the sanatoria. If the patient is under the care of a physician he will be careful, but the danger comes from the patient being up and about without any supervision. It has been said that appeal should be made to philanthropists. Dr. Knopf has appealed to philanthropists and shall continue to do it. If they would stop building churches, monuments and libraries for a little while and devote the money to the improvement of the condition of the poor by better housing, building of public parks and sanatoria they would bestow a great blessing on their fellow-men and will be very helpful in solving the tuberculosis problem.

RELATION OF SCHOOL METHODS TO SCHOOL DISEASES.*

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AND
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PASADENA, CAL.

The inquiry which was inaugurated in the Section on Nervous and Mental Diseases at the New Orleans Session (1903) as to the relation of school methods to the production of neuroses and psychoneuroses and other "school diseases" revealed the fact that the data for such inferences were not yet available.

Such data can only accumulate from a carefully planned system of medical inspection of school children: 1. At the time they enter on the school curriculum. 2. At frequent intervals during the years they are in attendance on school.

Moreover, before the school methods can be charged with any injurious effects that may be observed, there are many other possible causes of such ill effects that

*The committee appointed by the Section on Nervous and Mental Diseases of the American Medical Association, at the New Orleans session, 1903, made this report to the Section at the Atlantic City session, June 7-10, 1904.

will need to be eliminated, especially such as relate, 1, to the hygiene and sanitation of the school rooms, buildings and equipment; 2, to conditions to which the child is subjected outside of school hours. It would be manifestly unjust as well as unscientific to attribute results to school methods which may be due in a great measure, if not entirely, to other causes.

Such time as the members of the committee have had to give to the investigation assigned to them has, therefore, been used in an endeavor to discover what has been or is being accomplished throughout the United States and Europe in the way of medical inspection of schools, of school children, and of the conditions to which the school children are subjected both in and out of school.

Our inquiry, while it has brought to us the assurance that very hopeful progress is being made in this direction, shows plainly that we are still far away from that point where the question which was raised at the beginning of this investigation, namely, the effects of the school curriculum on physical and mental health, can be dealt with free from extraneous matter.

MEDICAL INSPECTION OF SCHOOLS.

It has long been recognized that the special knowledge acquired by the medical profession could be made to serve the cause of education in many ways, but it is only within comparatively recent times that the services of the physician have been called into requisition in any formal or systematic way to aid in perfecting the work of education.

Early in the nineteenth century Peter Frank of Austria considered the fittings for schools and the instruction in his "System of a Complete Medical Police." In Sweden, in 1832, the number of lessons in the schools was diminished for reasons of health. The first regulations concerning medical inspection in schools in France date back to the year 1833. In Germany, at Breslau, in 1864, Dr. Cohn, one of the most fervent advocates for medical inspection in schools, began the inspection of the Breslau school children, and from 1864 to 1866 he examined the eyes of over ten thousand children in search of the cause of the then recognized increasing short-sight. In Russia a physician has been appointed for each secondary school since 1871.

In Belgium, the city of Brussels first appointed special school physicians in 1874.

In England medical inspection of schools was instituted in London in 1889; in Scotland, at Edinburgh, in 1892.

In this country, medical inspection was introduced into the schools of Boston in 1890, in Philadelphia in 1892, in Chicago in 1896, and in New York City in 1897. The custom now prevails very generally in the cities throughout the United States, and it has been adopted in many of the cities of the South American countries, also in several of those of Japan.

Wherever the work of medical school inspection has been entered on, local conditions have governed the nature of the work done and the object that it has sought to attain. The kind of investigations that have been undertaken are of the greatest variety, therefore, but for the most part they may all be conveniently arranged in the following groups:

1. The inspection of pupils and teachers with the view of detecting infectious and contagious diseases

2. Investigation as to the sanitary and hygienic conditions of school buildings, the school rooms, the equipment, the grounds and the environment.

3. Inspection of the individual pupils, especially of those who have attracted the attention of the teacher by giving evidence of impaired eyesight, hearing, or any other deficiency or peculiarity, physical or mental, other than those referred to under Group 1.

The first and second of these groups, it will be seen, relate to the conditions, favorable or unfavorable, to which the child is subjected, while the third group takes cognizance more especially of the child itself, its capacities, both physical and mental, with the view of determining in what manner it is likely to respond to these conditions.

It is a public duty devolving on the local government of any community to guard in every possible way the health and happiness of its members. When, either voluntarily or by compulsion, the children of any such community are brought into close contact and intimate relations, as in the school room, both public safety and individual right demands that all danger arising from such relations should, so far as possible, be suppressed.

CONTAGIOUS AND INFECTIOUS DISEASES.

Some of the most dangerous and destructive diseases can become widespread and epidemic through the close association of children in the school room with but one case of such disease. It, therefore, becomes the imperative duty of the official guardians of the public health, and of boards of education, to unite in the adoption of means for the suppression of diseases which might, through the association of children in school, become prevalent. This is very generally recognized as the primary duty of the medical school inspector, and is of itself abundant reason for the appointment of such an official. The evidence which can be adduced in support of the benefits conferred on a community as a direct result of this inspection are overwhelmingly convincing.

The records of the health departments of Boston, New York, Philadelphia and Chicago, as well as of many other cities, both in this and foreign lands, show a material decrease in contagious diseases among children since medical inspection of schools was instituted in them.

In Boston, from Nov. 1, 1894, to Oct. 31, 1896, out of 23,207 pupils examined there were 6,571 cases of disease, and of these 5,818 were too ill to be in school; fully 40 per cent. of these diseases were contagious in character; the total school population at that time being 83,303.

In three months, in New York, 4,183 children were excluded from school on account of contagious diseases out of 63,812 examined.

Nine months of inspection in Philadelphia showed the presence of 5,876 cases of disease, of which 3,446 were of a contagious character.

In Chicago the mortality of children from diphtheria for the months of September and October, 1900, was materially reduced, there being 42 and 77 deaths respectively for these two months of this year, while for several previous years, before inspection was introduced, the average number of deaths from disease for the corresponding months was 85 and 127 respectively.

During a period of four months, in Chicago, 233 public schools were visited by inspectors, with the result of finding 1,417 cases of diphtheria and 306 of scarlet fever; while later, in the same city, out of a school population of 200,000, as many as 76,805 pupils were examined, and 4,539 were found suffering from contagious diseases of various forms, necessitating their exclusion from school. The president of the School Board of that city, in his annual report for 1901, states that the

schools were saved from an invasion of smallpox by the vigilance of the medical inspectors, and he commends the efficacy of the system because of the direct effect of its work in checking epidemics and diminishing the amount of disease among the school children.

The frequency with which inspection is made for the purpose of removing contagious or communicable diseases varies greatly in different localities. In some places the visits of the inspector occur each week, in others only at the opening of the school in the fall, in others quarterly throughout the year, and in others the inspector responds only when summoned by the school board, superintendent or principal. The diseases looked for in some instances are limited to certain ones specially named in the local ordinance or board of health directions, while in other cases all communicable disorders that involve the general health or that of any important order, even such as affect personal cleanliness or decency, are taken into account. It will be readily appreciated that the more thoroughly this work is done in the interests of the public health the greater will be the benefit that will result to the individual pupil, and this in more ways than that of his physical well-being alone.

The custom of medical inspection even for this purpose, however, is by no means as yet a universal one. Many localities, both in this and foreign countries, still lack this safeguard to public health and security for the individual pupil. And it can be said, without hesitation, that wherever this precautionary measure is neglected to that extent at least the school method is at fault.

HYGIENE AND SANITATION OF SCHOOL BUILDINGS.

Closely allied and almost inseparable from medical inspection, with the view of guarding against contagion and infection, is that which takes cognizance of the conditions to which the children are subjected in the architecture, lighting, heating, ventilation, seating, provision for recreation and environment of the school buildings. (Such conditions as we have classified in Group 2.) Inspection made for this purpose is but a step closer to the study of influences which work for good or ill to any child subjected to them.

It may be said that, while the importance of this kind of inspection is very generally recognized, it is not aided by the imperative element which forces recognition to the requirement for attention to that of Group 1. The fixed conditions that exist in school buildings already erected, and the trouble and expense that would be required to change them, are of themselves formidable obstacles to the adoption of suggestions as regards defects in any one of the sanitary or hygienic factors above named, even though a medical or other competent inspector should discover them and bring them to the notice of the proper authorities. Again, the less tangible nature of these influences, when they are of a faulty character, makes it more difficult to point to them as the direct cause of ill health in the pupils.

The more necessity, therefore, for delegating to physicians this work, since they are best fitted by their training to determine the value of these several factors on the health of the pupils and teachers in any concrete instance.

It is true that matters pertaining to the location, architecture, the lighting, heating and ventilation of school buildings have their specialists who are not physicians, and there are many excellent physicians who are but indifferently informed on these subjects and whose opinion as regards them would be of little value. And yet these are topics which are more closely related to the line of thought which occupies the mind of the medical practitioners than that of any other class of persons engaged in professional work except, perhaps, the teachers themselves, and since by their effects on the school population they are likewise factors which have a direct relationship to the public health, they are properly subjects for medical consideration.

Is it not a fact that it is to medical sources we must go for the most exact and complete information extant on the subjects of school architecture and hygiene, as, for instance, to the masterly encyclopedic work, *"Das handbuch der Schulhygiene,"* of Dr. Leo Burgerstein of Vienna, Austria?

As has been said, in all the progressive countries on the continent of Europe medical inspection of schools has been established either in the large centers of population, by municipal authority, as in Great Britain, or in entire countries by authority of the minister of education or public health, as in France, Germany and Russia. In all of these countries almost without exception the inspection covers the matters of hygiene and sanitation of buildings; and the recommendation of the inspectors as to needed changes or as to the requirements that must be met in the erection of new buildings must be complied with.

In this country, a committee on school hygiene was appointed by President Schaeffer at the meeting of the Department of Superintendence, at Chattanooga, Tenn., Feb. 22-24, 1898 The chairman of that committee was the present U. S. Commissioner of Education, W. T. Harris, and he had for his eight associates two state superintendents of public instruction, two presidents of normal schools, two city superintendents and two other persons of special fitness.

This committee was appointed pursuant to the following resolution:

> This department approves of the plan of creating a committee whose duty it is to make or cause to be made a scientific determination of the factors involved in the subjects of seating, lighting, ventilating and heating of school buildings; and to this end prepare and present to this body at the meeting in 1899 a preliminary report setting forth the nature of the problems involved and its recommendations for the further prosecution of the inquiry.

This committee made a preliminary report through their chairman to the parent body in 1899, in which, after dealing with the fundamental principles in the light of the most recent information of the four subjects referred to them for consideration, and setting forth, from abundant knowledge, how deplorable were the conditions existing in the public schools of this country, and calling for more enlightenment on the part of school boards, teachers and others regarding the subjects of school hygiene and sanitation, they made the following recommendations:

They proposed two plans, the first of which contemplated the appointment of a committee of experts, with an appropriation of $2,500 or more.

The second proposed that

> A series of five prizes be offered for essays on the essential points of school hygiene, the same to discuss ideals and compare them with conditions that exist in such a manner as to aid the teacher, the superintendent and the members of school committees to criticise intelligently what they find in operation, apply cheap but effective devices to correct its defects, and decide rightly in regard to new models placed before them for adoption.

It was thought that the expense of securing the desired data and expert opinions and suggestions would be

much less on this plan, and at the same time the work would in all probability be done in a more efficient manner.

This report goes on to express the opinion that

The committee of experts on the special prize essays, should not undertake to exhaust the subject of school hygiene, on the one hand, nor deal with vague generalities, on the other, but treat of each of the most important topics one by one, and to aid the teacher to make the best of existing conditions and enlighten public opinion on the subject of hygienic ideals or models.

We have ventured to quote at some length from the report of this committee, since it makes known to us, through what must be regarded as the most authoritative source. the urgent need which exists in this country at present for an organized movement looking to the universal betterment of school room sanitation and hygiene, as well as to make known to the members of this Association, so many of whom are deeply interested both personally and professionally in the matter, that our national association of representative educators are like-minded with ourselves in these matters and have been moving in the same direction. We regret to be compelled to add, in this connection, that the Commissioner of Education has informed us that no action was taken on the recommendations made by the committee of nine.

May it not be that the time has arrived for the American Medical Association to join forces with the National Council of Education and advance, by mutual aid, into a field where the interests of both bodies are inseparable.

INSPECTION AND CARE OF THE CHILD.

We now turn our attention to the third class of inspection, that which has for its object the school child itself. In a study of the conditions needed for a harvest, excellent in quality and abundant, the seed is the most important factor; and when, as in this sowing, the seed contains the life of the nation, not alone must the soil be looked to, but we must know the nature of the seed we are attempting to cultivate.

Child study is a very comprehensive subject and one wherein new and interesting problems will never cease to arise. It is but the merest elementary work that is done when the attempt is made to take a simple inventory of the child's physical and mental equipment at the time it enters on the school curriculum and at certain stated periods during its course of school attendance.

To a certain extent this has been done by the teacher throughout all time. And the better the teacher the more accurate and discriminating has been her observation as to the physical peculiarities and mental disposition and aptitudes of each pupil. But no matter how careful an observer the teacher may be, she is not expected, as a rule, to have expert knowledge in other fields than that of her peculiar vocation. She is greatly aided in the detection of eccentricities and oddities in her pupils by the physician, and his suggestions as to the manner in which the facilities she has at her command may be made to adapt themselves to special cases has received her grateful acknowledgement.

This pupil, though bright in many ways, frequently blunders in reading the exercise from the blackboard. Has he defective eyesight? Another, though apparently attentive, does not seem to understand at times the simplest direction. Is his hearing imperfect? Still another, though provided with seat and desk of the most approved patterns, grows weary and listless in attitude and manner, long before the closing hour. Has he spinal weakness or other bodily infirmity to account for his mental dullness? Such questions as these are constantly arising in the mind of the alert and intelligent teacher. But they remain unanswered, the pupils in question continue the victims of uncertainty, and the school as a whole is handicapped until it becomes somebody's business to remove the doubt and correct the defect, or make clear the exact condition that must needs be dealt with.

Here again the interest of the whole community is involved, to quite as great an extent, though in a different way, perhaps, from that brought about by the presence in the school room of a case of contagious disease. Whatever time and energy is expended needlessly by the teacher in attempts to surmount difficulties which the oculist or the aurist can alone correct is so much taken from the rights of the remaining pupils; while the duty to educate brings with it the obligation to at least point out to the parent or guardian the obstacles met with which prevents the result from being as satisfactory as it should be.

These are certain of the grounds for that personal inspection of school children which has for its object, first, the very best result attainable for the child, and, second, the increased efficiency of the school work as a whole. School committees or boards of education can safely base their action in appointing medical examiners to do this work on these safe and sound principles. And in many enlightened communities such conceptions of public duty have been clearly discerned and put into practice.

The earlier in a child's school life his or her need of special attention can be discovered the more perfectly will all interests connected therewith be served. It is so common a custom for the personal medical inspection to be made of children at the beginning of their school life in the Swiss and German schools that it may be properly spoken of as the system of those countries. This is by no means true in other countries, and is lacking even in many places where medical school inspection in some form has been long established. It is deemed sufficient in many places to have each child examined once during its attendance on school, and this may not occur until it has been a pupil several years, while in still other places it is the custom to limit the personal inspection to such pupils as have, by some physical or mental peculiarity, attracted the special notice of the teacher, and this may be after it is well along in the school course.

In this country every variety of plan is in operation in different localities as to the time and extent of the individual examination of pupils, when made for other purposes than that of detecting the presence of contagious and infectious diseases.

In some few places the examination is a routine one, all pupils are subjected to it on entrance and at more or less frequent intervals during their school life. The examination takes into account the condition of the sight, hearing, physical development and posture, mainly, though in some few instances the inspection is much more minute and takes cognizance of the vital capacity, the nature of the respiration, the presence of nasal obstructions, the condition of the skin, the spine and the mental peculiarities and aptitudes.

This more detailed examination is usually undertaken only in such places as have made special provision for

"exceptional" children (to adopt the term suggested by E. L. Stevens, associate superintendent of the New York City schools, in place of "defective," which is objectionable for many reasons).

In Chicago a most elaborate method of physical and mental investigation of the public school children has been recently inaugurated, which all interested in this subject will watch carefully in order to discover what special advantages it may reveal. It consists of a combination of measurements, tests and experiments, such as are employed in departments for physical culture and in the psychologic laboratory. They are designed to obtain, after the most exact methods of scientific research, the information regarding the child's development and mental activities, which have up to the present been estimated by rule of thumb, without the use of laboratory apparatus or the aid of instruments of precision.

This attempt in the "Windy City" indicates, we may say, the high-water mark which efforts at medical inspection have so far reached either in this or any other country and is a fair sample of Chicago's originality and push. It is questioned as yet how far this personal examination of school children can be undertaken with profit. In the opinion of your committee, there is a great good to be gained from investigations such as these, provided they have a definite aim, for only from such systematic, careful and minute study can such data be gathered as will make clear to the educator the right adaptation of the amount and character of mental stimulus to the state and periods of physical development of the growing child.

Some of the results of personal inspection already obtained, however, leave no doubt as to their utility both as regards the benefit conferred on the individual child and their influence in improving the work of the school room.

It has been clearly demonstrated that from 20 to 45 per cent. of children attending our public school have defective eyesight. In fully two-thirds of these the vision is so imperfect as to be in need of treatment by properly fitted glasses or otherwise. Before examination by experts was made, in only a small proportion of this number, not to exceed 10 per cent., had the defective vision been known to either parent or teacher.

Less has been done in the way of testing the hearing, but an analysis of all available statistics as to the condition of this special sense among children show serious defects, varying from 3 to 20 per cent. of those examined, and our conclusions agree in the main with those set forth in a report made in 1900 by Superintendent Southworth of Somerville, Mass.:

"1. At least one child out of every five has some defect in one or both ears.

"2. In the majority of cases neither parent, teacher nor child is aware of the defect.

"3. Children defective in hearing are usually counted careless, inattentive or positively stupid by parents and teachers, who are ignorant of the real cause. Such children are often kept two or more years in the same grade, and, being the largest children, are not infrequently given seats in the rear of the room, where their chances of hearing are reduced to a minimum. This point is so important that it deserves special notice Out of 961 children examined in two cities, 176 (18.3 per cent.) were found to have defective hearing, while only 2 out of the 176 were known by their teachers to be deaf.

"4. A child who is hard of hearing can hear better at certain times than at others. This fact often leads parents and teachers to misjudge a child. The remark is often heard, 'Don't tell me Johnnie is deaf; he can hear as well as anybody when he wants to.'

"5. It is estimated that 90 per cent. of the cases of defective hearing can be cured if taken in time."

While in our methods of public school instruction the senses of sight and hearing are depended on too exclusively, nevertheless they are the main avenues for gaining and maintaining that relationship with the external world which is the foundation of all education, and a child's mental acquisitions and development will be in direct proportion, *ceteris paribus,* to the efficiency of these sense organs. If any testimony is needed in support of this almost self-evident proposition, one needs but to note the more frequent presence of defective eyes and ears in backward, feeble-minded and eccentric children as compared with the average child.

In the most progressive communities, as soon as a serious fault in the work of education is clearly recognized some plan for its correction is proposed and organized. Grave defects in sight and hearing, such as total blindness or deafness, have led to the creation of special institutions for the care of those so afflicted; but it is left for the public school system to provide means for meeting the requirements of the minor deficiencies of this nature, and in many places this is being done in a very creditable manner by the school authorities, stimulated and aided always by members of the medical profession.

A very large proportion of school children needing special attention are so slightly handicapped by physical defects that they can be cured, or adjusted to more favorable conditions in the ordinary school room, as soon as the nature of the defect is discovered Where the defect is of a graver or more pronounced character classes for such "exceptional" children have been organized and placed in charge of teachers having special fitness for such duty.

We have not had time for a thorough canvass of what has been done in this direction in the public schools of the European countries. But special provision was made for defective children in the public schools of Great Britain in 1892. In that country the defective child is made a study by the teacher as regards his habits, personal appearance, school record, disposition, moral nature and other peculiarities. This record is then sent to the clerk having supervision of special work for mentally deficient children, and if approved it is sent to the examining committee, the physician and the supervisor of special schools, to serve as a basis for their more expert examination. The pupils are examined both for admission and for discharge from these classes.

SPECIAL SCHOOLS FOR BACKWARD CHILDREN.

Special schools for the mentally backward have been established in this country in Providence, R. I.; Springfield and Boston, Mass.; Philadelphia, and New York City, in the order named. There are, no doubt, many other places deserving mention in this connection, but it has been impossible with the time and facilities at our disposal to make an exhaustive investigation.

Providence, R. I., however, deserves the credit for having, in 1894, taken the initiative in this country in providing special instruction for defective children in connection with a public school system. The classes organized include both sexes.

At Springfield, Mass., a class for defective children was established by the superintendent of schools, Dr. Thomas M. Balliet, in 1898. The number of pupils in

a class was limited to 15, and ages for entrance from 6 to 14.

In Boston, Superintendent Seaver, with the consent of the school board, engaged a teacher for children of this class in 1898, who was placed in charge of a class of 15 pupils in January, 1899.

At Philadelphia, the first school of this character was organized in the Hollingsworth public school in July, 1899, with the approval of the school authorities.

We have been unable to obtain the exact date at which the first class for exceptional children was started in connection with the New York City schools, but since the inauguration of the plan there it has been prosecuted with great discernment and enthusiasm by those officers and teachers who have had it in charge. Ten special, or ungraded, classes have been already organized in connection with nine of the public schools of that city, and certain of them are in charge of teachers of exceptional ability. A physician connected with the physical training department has been assigned to the examination of children who are reported by principals and teachers as defectives.

The report of the New York City Superintendent of Schools for 1903 contains an "admirable account of the work accomplished for such unfortunates in London and other English cities," prepared by Miss Elizabeth E. Farrel. It also contains a comprehensive and able discussion of the principles underlying this work as a part of the public school system, with some excellent suggestions by the associate superintendent. The motto selected for the opening of the associate superintendent's paper voices well the sentiment which has actuated all who have been aroused to lend their influence and action to this movement: "The aim of an education must be the development of the fullest and soundest mental, moral and physical life of which the particular individual is capable."

In the fulfillment of this purpose a good share of the work must, as has been seen, be done by the physician. The physician should see to it primarily that the environment of the child in the school is what it should be in the light of present knowledge, and that the child, carefully studied as to its individual capacities, is adjusted in the most favorable manner to that environment.

CONCLUSION.

As we have sought to show in the body of this report, this primary work is as yet but indifferently done; in some countries and in some places no attempt is made at it; in others the attempt is imperfect and feeble; in a few places it is done in a most satisfactory manner.

In the opinion of your committee, the American Medical Association should place itself on record as advocating and urging the inauguration of a thorough and systematic medical inspection of public schools and school children in every section of this country:

1. In the interests of public health, since it is a potent means for detecting and preventing the spread of contagious and infectious diseases.

2. For the purpose of securing to the child, while in attendance on school, the most favorable hygienic and sanitary conditions.

3. For the purpose of getting exact knowledge regarding the physical and mental capacities of each child, in order that the methods of instruction may be intelligently directed to meet individual needs.

Thus far it would seem we can safely go in support of what the most enlightened and progressive educators are seeking to accomplish, and in this effort they should receive from this national organization hearty indorsement and assistance, as they have in many localities from its individual members.

THE MORTALITY OF APPENDICITIS.

CHANNING W. BARRETT, M.D.
CHICAGO.

Long before the pathology of appendicitis was so well pointed out by Fitz in his classical paper in 1886, the profession understood that there was a disease in or around the cecum that had a large mortality. Even the ancients recognized a fatal swelling in the right inguinal region. The appendix was recognized anatomically in the sixteenth century. The early half of the nineteenth century saw an increasing interest in the disease now called appendicitis. John Burne published two interesting articles in the 30's (1837 and 1839), and, while he was hampered by the unsurgical methods then in vogue, he shows much ready knowledge of the subject and speaks of the disease as of "frequent occurrence, always dangerous, often fatal and characterized by a train of symptoms so peculiar and marked as to render the recognition of them certain and not difficult." His first paper records eight cases, of which three lived and five died. His later paper details seven cases, with four deaths. With a few exceptions, he located the pathology in the cecum, if the patient recovered, and in the appendix if a postmortem was held. Until the latter part of the nineteenth century the true pathology was not generally understood, some even thinking that the perforation found in the appendix at postmortem was secondary to the abscess in the cecal region. Fitz's paper in 1886, based on thorough postmortem study, revealed the fact that many cases of peritonitis had their origin in an appendicitis, and he gave us a basis for sound pathology. Antemortem examinations of healthy and diseased appendices since that time have added much to the general knowledge of the pathology of this organ. A contest, sometimes amicable, sometimes bitter, always spirited, was waged during the next twelve or fifteen years, and to a less degree up to the present time, as to whether appendicitis should be considered a medical or a surgical disease. This is ended by most authorities conceding that it is a surgical disease, yet the majority of cases are first seen by the general practitioner, and, therefore, the safety of a case depends on the wise coöperation of the physician and of the surgeon. The lowering of the present mortality depends on getting these men who see a few cases each year to recognize appendicitis early, to appreciate the pathology, and to recommend the proper treatment. This can best be done by the general practitioners retaining enough interest in the case to follow it to the operating room. This will facilitate a more ready appreciation of conditions in the next case.

STATISTICS ON APPENDICITIS, PERITONITIS AND TYPHLITIS.

To throw as much light as possible on the present mortality, I have, with the efficient aid of my assistant, Dr. Eddy, canvassed the death records of Chicago for the last two and one-half years, and also present in Table 1 and Chart 1 the statistics on appendicitis, peritonitis and typhlitis since 1890. The records show many things of interest and of value, although they are less valuable than we might wish, because they do not answer all of the following points: Age, sex, previous

attacks, date of onset of fatal attack, date of diagnosis, treatment advised, treatment followed, date of operation, if any, conditions found at operation, complications, length of sickness.

The answer to these questions in each of the several hundred cases, to say nothing of the complete clinical and postmortem records, would go far toward pointing out the proper course in dealing with appendicitis.

A study of the reports of the Bureau of Vital Statistics since 1890 shows as follows:

Date.	*Typhlitis.*	*Peritonitis.*	*Appendicitis.*
1890	220	16	...
1891	302	21	...
1892	412	25	1
1893	454	57	34
1894	369	...	87
1895	328	...	128
1896	211	...	158
1897	227	...	141
1898	103	...	174
1899	110	...	251
1900	87	...	233
1901	89	...	249
1902	71	...	262
1903	48	...	261
1904 (first half)	...	...	136

This table shows a marked increase in the recorded cases of peritonitis from 1890 to 1893, inclusive; then

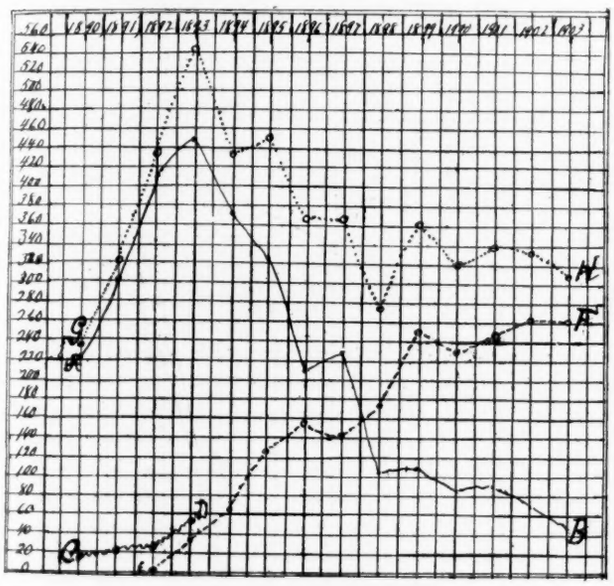

Chart 1.—A to B, peritonitis curve from 1890 to 1903, inclusive. C to D, typhlitis curve from 1890 to 1893, inclusive. E to F., appendicitis curve from 1892 to 1903, inclusive. G to H, curve showing totals of these 3 diseases from 1890 to 1903.

a marked and almost steady decline until the present time. The nomenclature "typhlitis" was dropped with the beginning of 1894. Appendicitis shows an almost steady increase up to the beginning of the second half of 1904, when our study ends.

It is to be understood that the report of vital statistics, while being taken from the death records, can not follow the uncertain nomenclature of the death certificates, and, therefore, it is to be further understood that there are still cases of "typhlitis" reported, but they are classed with appendicitis. If there was "appendicitis" reported before 1902, it was probably classed as "typhlitis." There are still many cases of peritonitis reported, but, when possible, the authorities determine from the physician making the report the cause of the peritonitis. Further, there are less cases than these figures show reported as appendicitis. These figures represent what are considered to be undoubtedly appendicitis, including reported appendicitis, typhilitis, inflammation of the bowels, with rupture and abscess, etc. These figures probably do not reach the full number, however. Possible cases of appendicitis are excluded from the list.

A canvass of the records of death certificates for two and one-half years, beginning Jan. 1, 1902, and ending June 30, 1904, shows, for 1902, 227 cases; for 1903, 211 cases, and for the first half of 1904, 116 cases, in which appendicitis is mentioned as the cause of death or is a factor in the cause of death. This is a total of 554 cases. But Table 1 shows that the Bureau of Vital Statistics for the same period considered that 659 cases died of appendicitis and its complications, a difference of 105 cases, or 18.95 per cent. more cases than were diagnosed. A number of the 554 cases were diagnosed by the coroner. In this connection it is interesting to note some of the diagnoses returned to see how this difference is accounted for and how, possibly, a greater number of cases should be accounted for. In the death records we find such returns as the following: Hundreds of cases of gastritis, gastroenteritis, enterocolitis, cholera morbus and cholera infantum. Cases of gastritis with obstruction of the bowel. Peritonitis; peritonitis, cause unknown; peritonitis, non-traumatic; peritonitis idiopathic (I had supposed that this disease had passed into history); peritonitis, general, with intestinal obstruction; peritonitis and enteritis; peritonitis, with abscess and rupture of the bowel; peritonitis, with gastritis; peritonitis, with perforation of the intestine; peritonitis, inflammation of the bowels; peritonitis, acute intestinal catarrh; peritonitis, constipation; peritonitis, diphtheritic; peritonitis, acute, following abdominal sinus; peritonitis, indigestion; peritonitis, exhaustion; inflammation of the bowels, acute (inflammation of the bowels is classed with enteritis by the Bureau of Vital Statistics); inflammation of the bowels, rupture; perforating ulcer of the bowels, ruptured intestines; perityphlitis, typhlitis, gastroenteritis and exhaustion (operation on the second day); sepsis following abdominal abscess (in male).

We find by a study of statistics that appendicitis is the cause of death in just about 1 per cent. of all deaths in Chicago; that very close to the same number die from appendicitis as from railroad accidents; that just about the same number of deaths are reported from appendicitis during the last five years as from smallpox, since 1883; that about two and one-half times as many die from appendicitis as from puerperal fever and just slightly less than one-half as many as from typhoid fever.

This does not take into consideration the numerous possible "appendicitis" cases masked under the above vague diagnoses.

Study of this large number of cases to throw some light on the influence of sex as an etiologic factor gave the following results:

TABLE 2.—APPENDICITIS DEATHS BY SEXES.

1897	104 males,	37 females,	or 26.24 per cent.
1898	118 males,	56 females,	or 32.18 per cent.
1899	150 males,	101 females,	or 40.23 per cent.
1900	138 males,	95 females,	or 40.77 per cent.
1901	141 males,	108 females,	or 43.37 per cent.
1902	151 males,	111 females,	or 42.37 per cent.
1903	145 males,	116 females,	or 44.44 per cent.
1904 (first half)	81 males,	55 females,	or 40.44 per cent.

For the last two and one-half years the total number of deaths from all causes was 68,950, of which 30,023, or 43.54 per cent., were females. For this same time there were 659 cases died of appendicitis, of which 282, or 42.79 per cent., were females.

There are many diseases common to both sexes that

show a smaller percentage of female mortality than does appendicitis, as typhoid fever, 40.62 per cent., and consumption, 38.52 per cent.

Taking the cases reported as appendicitis for the two and one-half years, numbering 554, we find that as to age they died as follows:

TABLE 3.

At	5 months...	1	20 years....	19	39 years....	7	58 years.... 3
	2 years.....	2	21 years....	12	40 years....	14	59 years.... 1
	3 years.....	3	22 years....	15	41 years....	6	60 years.... 2
	4 years.....	6	23 years....	20	42 years....	8	61 years.... 2
	5 years.....	5	24 years....	14	43 years....	11	62 years.... 1
	6 years.....	7	25 years....	14	44 years....	8	65 years.... 1
	7 years.....	12	26 years....	12	45 years....	5	67 years.... 2
	8 years.....	16	27 years....	8	46 years....	9	69 years.... 1
	9 years.....	21	28 years....	8	47 years....	5	71 years.... 1
	10 years.....	7	29 years....	10	48 years....	5	72 years.... 1
	11 years.....	19	30 years....	17	49 years....	3	73 years.... 1
	12 years.....	11	31 years....	11	50 years....	2	74 years.... 1
	13 years.....	14	32 years....	9	51 years....	3	78 years.... 1
	14 years.....	15	33 years....	9	52 years....	4	
	15 years.....	10	34 years....	11	53 years....	2	
	16 years.....	12	35 years....	3	53 years....	2	
	17 years.....	17	36 years....	10	55 years....	2	
	18 years.....	17	37 years....	5	56 years....	2	
	19 years.....	22	38 years....	11	57 years....	3	

The shortest time recorded between the onset of the disease and death is 1 1/3 days; the longest time recorded is 1,000 days. The greatest number died from the end of the fourth to the end of the fifth day. The average length of the time of the disease, as reported, 16.26 days. Leaving out all cases two months old and over as being cases of chronic appendicitis, the average length of time is 8.48 days. Murphy's tables show that the average length of time that his fatal cases lived after operation was 2.8 days. Estimating this as the average time in these cases, the operation must have been performed as late as the end of the sixth day, if at all.

Again, studying these cases as to complications, we find that of the 554 cases 78 are recorded "appendicitis" without any complication mentioned. But as patients do not die of appendicitis alone, these are to be left out of the consideration. In the remaining 476

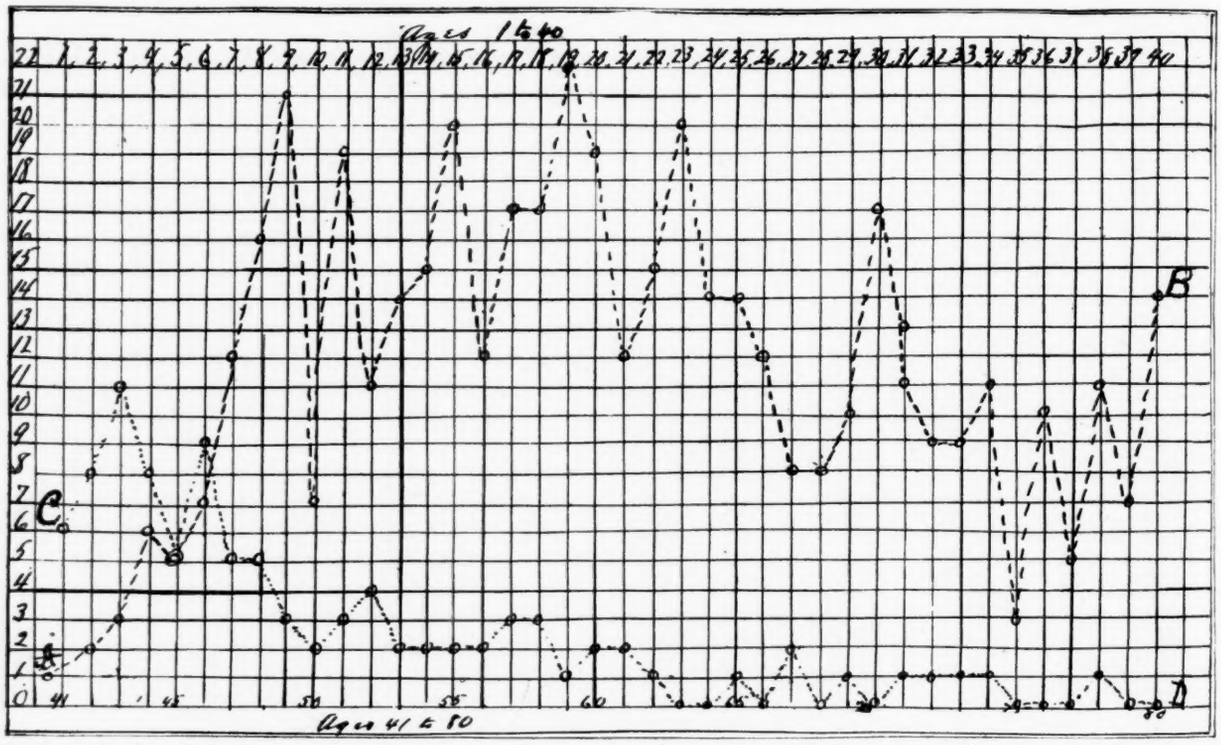

Chart 2.—Number of deaths per year of age. A to B, curve showing number of deaths each year from 1 to 40. C to D, curve showing number of deaths each year from 41 to 80.

The lowest age of death, 5 months; the greatest age, 78 years; age of the greatest number of deaths, 19, in which there were 22 deaths. The average age of death, 26.54 years.

A study of these 554 cases as to duration of the disease, while less accurate than the ages, shows some things of interest. The time is not stated in 182 cases; stated in 372 cases.

TABLE 4.

1 to 2 days	9	19 days	2
2 to 3 days	24	20 days	3
3 to 4 days	41	21 days	12
4 to 5 days	42	22 days	1
5 to 6 days	36	26 days	1
6 to 7 days	31	28 days	1
7 to 8 days	37	30 days	9
8 to 9 days	18	35 days	4
9 to 10 days	6	40 days	1
10 to 11 days	29	43 days	1
11 to 12 days	2	60 days	8
12 to 13 days	8	75 days	1
13 to 14 days	6	90 days	3
14 to 15 days	19	95 days	1
15 days	4	111 days	1
16 days	1	365 days	2
17 days	2	1000 days	1
18 days	3		

cases we have complications mentioned 702 times. Due allowance must be made for the inaccuracy which must necessarily accompany a superficial and incomplete record by so great a number of observers. Yet they derive a certain value by reason of this large number of observers. We find, in the 476 cases, the cause of death or complications was stated in the following number of cases:

TABLE 5.

Peritonitis	352	Exhaustion	4
Perforation	117	Gangrene of the bowel	3
Suppuration	40	Rheumatism	3
Gangrene	38	Pyemia	3
Abscess	24	Miscarriage	3
Obstruction	24	Fatty heart	2
Pneumonia	10	Cholangitis	4
Uremia	9	Brights Disease	2
Pyosalpinx	8	Pleurisy	2
Shock	8	Acute dilatation of heart	2
Adhesions	6	Pericarditis	2
Nephritis	5	Gastritis	2
Tuberculosis	5	Sinus	2
Endocarditis	4		

Each of the following complications are mentioned once: Perforation of the intestines, fistula, respiratory

failure, cholemia, congestion of the liver, abscess of the lung, subphrenic abscess, chronic apoplexy, hernia, paralysis of bowed, acute myelitis, typhoid following bronchitis, cholecystitis, gastroenteritis, embolism, diabetes, gallstones, sepsis (septic peritonitis mentioned many times).

Complications mentioned 702 times in 476 cases show that two or more must have been mentioned many times. In some we have perforation, gangrene and peritonitis; in some only perforation, and in some only gangrene; so the actual number of cases dying from peritonitis was in excess of the number mentioned under that head, 352.

A further study of the cases shows that 384 died in the different hospitals of the city, and 170 out of the hospitals; that is, 30.68 per cent. had not the advantage of hospital treatment.

In only 105 cases it is stated whether or not an operation was performed. Of this number, 85 were operated on and 20 were not. But little weight is to be attached to this, however, for, with but few exceptions, the hospital cases were undoubtedly operated on, and with but few exceptions the house patients were not.

We learn, then, from this study, first, in Table 1, that Chicago still has a mortality from appendicitis about equal to .01 of the mortality from all causes.

Second, from Table 2, we find that the percentage of female mortality from appendicitis varies very little from the percentage of female mortality from all causes, and that appendicitis is to be looked for as common in the female, notwithstanding the old belief that it was rare.

Third, Table 3 shows the greatest mortality at the best period of life, early adult life, the greatest number dying at any one year of age being 22 at the age 19, the average age for all deaths being 26.54 years.

Fourth, Table 4 shows that leaving out the chronic cases, the average duration of the disease in the 372 cases in which the time was mentioned, was 8.48 days. Murphy's mortality cases show that the average time after operation until death was 2.8 days. This demonstrates that this vast number of fatal cases were operated on at the end of the sixth day, while all authorities concede that an operation on the first or second day is safe and desirable.

Fifth, Table 5 shows that the most frequent cause of death in appendicitis is suppuration of the appendix, followed by perforation, gangrene or passage of the infection through the wall and peritonitis; and further, that adhesions and obstructions are common.

Sixth, we find that many cases did not have the advantage of hospital treatment or of an operation.

Seventh, an early diagnosis is most desirable, yet the Bureau of Vital Statistics considers that a diagnosis was not made at all in 105 cases; a few of the remainder were made by the coroner. Some were made postmortem, and we can never know how many were made too late for any operation to save life. The long but only partial list of vague diagnoses copied from the death certificates show that in all probability some cases escaped detection.

We learn by our mistakes, and here are over 600 of them when measured by the layman's yardstick, results. Viewing it from our standpoint, I think there is no denying the fact that a large percentage of these cases could have been saved by an operation at the right time. If the physicians who had charge of this large number of fatal cases were questioned as to the reason for delay, supposing a diagnosis had been made, the following answers would be common: First, the people would not consent to an operation. Second, I was treating the case medically until I could detect pus. Third, I was waiting for the "interval" when a safe operation could be performed. Fourth, I was treating the case by the "starvation" method. (This last, in my experience, is by far the most common.)

This paper can not interest itself with the reason for the layman's refusal to comply when an early operation is advised, further than to say that it is largely, although not entirely, due to the failure of the profession to have unanimity of mind as to what is best to be done. Too frequently we see physicians approach even so important a case as appendicitis with feelers projected to detect the people's wishes, and then advise accordingly.

WAITING FOR PUS.

"I was treating the case medically until I could detect pus."

There is no greater fallacy than the idea that an unruptured appendix deserves medical treatment, but that the advent of pus outside the appendix is an indication for insistence on an operation. A physician harboring this opinion—and there are not a few—should remember that so great an authority as Osler has said, "There is no medical treatment for appendicitis." Knowing the virulence of the appendiceal infection, its tendency to break through the wall of the appendix and cause a fatal peritonitis, the man who deliberately sits waiting for pus and peritonitis can only be likened to a fireman who would stand hose in hand and contemplate a beginning conflagration in your home, and withhold the stream for fear of soiling the rugs.

THE "INTERVAL" OPERATION.

The much-talked of "interval" operation is a wise thing to advocate for a patient in the interval. But it is sometimes a most dangerous thing to advocate and wait for during an attack. Any treatment that goes sparring for a diagnosis the first thirty-six hours and goes maneuvering for the advantage of an interval operation during the next few days, and then closes for a life or death struggle on the fifth or sixth day, will largely increase the death rate. With the onset of an acute attack of appendicitis there is an interval—but not the one so frequently alluded to—that should interest the patient and the physician. This is the interval between the onset of infection in the appendix and the time when a dangerous amount of the infection would be found outside the appendix if it were not removed. The interval between pus in the appendix and pus everywhere. This is the interval which, had a surgeon's knife cut short the possibility of "pus everywhere," would have saved the lives of most of these patients. This is the interval which must be appreciated by every physician and every surgeon in order to save a large percentage of the 600 odd cases of appendicitis which the present methods will lose in Chicago during the next two and one-half years.

"THE STARVATION TREATMENT."

So widespread has become the misapplication of this treatment, and so potent has it become as a factor in the mortality of appendicitis, that it is deserving of more than passing notice. First let it be understood that its chief exponents do not now claim to recommend this treatment for appendicitis itself, but for peritonitis, diffused, spreading or general. Let it also be understood

that this is not recommended as a treatment for a ruptured or gangrenous appendix at any time, if a localized abscess is formed, or a peritonitis limited by adhesion. There is little doubt but that too much stress was laid on this treatment in former writings, as a cure-all for acute appendicitis. And it is certain that harm has been done by regarding it as a distinct system of treatment, as opposed to operative measures. The belief has been current that if the "starvation treatment" was used an operation was not indicated, and if an operation was performed, food and cathartics could not be withheld. Now, as a matter of fact, intestinal rest bears the same relation to appendicitis and peritonitis that rest in bed and elevation does to osteomyelitis; that a dark room does to glaucoma; that quiet and rest does to an otitis media; yet neither of these things takes the place of an operation, but they are useful aids to the operation. Withhold food, certainly; wash out the stomach if it is behaving badly. But why deny a man a needed operation because we have washed out his stomach? The question of operation should be decided on merits of its own and apart from these minor procedures. This is not a system of treatment, but a factor in the proper treatment. Now, to get at the merits of the treatment, let us recall that infection spreads through the peritoneal cavity along the line of least resistance by reason of two important forces (Ochsner mentioned only one). One is peristalsis, and nature tries to limit this, and I see no reason why we should not aid her by withholding food.

The other very important factor is inflammatory products under pressure. This causes direct extension of infection and absorption. The best possible way of keeping the infection from traveling in a dangerous direction is to make an opening of least resistance in a harmless direction. The less wall that is formed, the greater need for the opening. The best way to keep infection from pouring into Lake Michigan was to make an opening of least resistance in the direction of St. Louis. Suppose, for illustration, we have an infected swollen appendix, not ruptured. We decide to operate. On the way to the operating room the intense pain ceases suddenly. The appendix is ruptured. Shall we send that patient with such a condition back to wait thirty-six hours for a limiting wall of adhesions to form, or is there not greater need of an operation because of the rupture? Would it not be better to allow this pus to escape through a harmless point of least resistance? So much for an infection with not yet a general peritonitis.

In a general peritonitis the argument for walling-off no longer obtains. It is now a question of how the patient can best take care of the toxins. The majority believe in operation. Murphy reports 16 cases of perforative peritonitis with immediate operation, with only one death.

Hawks reports 11 cases with two deaths, and he only included in this class cases in which pus was actually found in all parts of the abdomen. Ochsner reports 18 cases with ten deaths, and in another paper 33 cases with ten deaths, treated by the preparatory starvation treatment. This treatment seems of doubtful utility, then, when carried out with strict care by the author of the treatment.

What, then, shall we say of it when it is carried out imperfectly, as it must needs be outside the hospital, and at the wrong time, to the exclusion of surgery? From observations in my own work and from conversations with others, I am convinced that the misapplication of this treatment by its being used for early cases is one of the greatest factors in producing late neglected cases of appendicitis, and anything which turns an early case into a late one is fruitful of producing a mortality. If the layman, the physician and the surgeon could unite on the oft-repeated proposition that early cases should be operated on immediately, there would be a grand cutting down of the mortality, regardless of the treatment used for the late cases. The Germans are only recently adopting this method. The advocates of the starvation treatment admit that it does not contraindicate an early operation, but that very few cases find their way into the surgeon's hands during the first thirty-six or forty-eight hours. This latter statement is true to a lamentable degree.

CONCLUSIONS.

1. To decrease the mortality of appendicitis an early diagnosis is of the first consideration.

2. All troublesome appendices should be removed without waiting for an acute attack.

3. All acute cases should be dealt with surgically in the interval between the onset of appendicitis and the dangerous rupture, without waiting for pus outside the appendix, for peritonitis, for adhesions or for a possible but remote interval.

4. Cases of perforation or gangrene, with localized abscess, should be operated on with drainage or removal of the appendix, according to the judgment of the operator.

5. Cases with perforation or gangrene without a wall of adhesion are in still greater need of an outlet for the infection, to lessen the tendency of infection to travel inward.

6. Price, Murphy, Hawkes and others have shown a better percentage of recovery by the operative treatment of acute perforative peritonitis.

7. A case of acute appendicitis should be operated on at any time if the patient's condition will admit of an operation, unless the case is rapidly and beyond a question of doubt convalescing. And in this latter case we should wait until all acute symptoms have passed.

8. Healthy appendices should be left alone.

9. The proper treatment, as indicated above, does not contraindicate the use of stomach lavage or the withholding of food, and when proper, these things should be employed, with or without operation.

10. Lastly, life is not the only consideration. Time of cure and after conditions are important. A patient going through an acute attack without operation is saved by the adhesions. Adhesions are life-saving for the time, but they may be death-dealing afterward. The waiting treatment favors adhesions. The early operation avoids them. An early operation sends the patient home in from ten days to three weeks. Twelve cases treated by the rest treatment reported in THE JOURNAL of the American Medical Association, June 22, 1901, show an average of 60.5 days from the onset of the disease to the discharge from the hospital.

100 State Street.

Study Ordinary Cases.—Dr. Hugh T. Patrick says: "If we would put more time on cases of which we see a great many and less time on the cases which we see once in a lifetime, it would be a greater benefit to ourselves and to our patients."

AN EXPERIMENTAL AND CLINICAL STUDY OF THE VALUE OF CLAY-MIXTURE POULTICES.*

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One of the most interesting phenomena in the trend of our modern therapeutics is the present extensive use by physicians of the variously medicated clay mixtures as external applications in the treatment of pneumonia, bronchitis, pleurisy, rheumatism, synovitis, boils, etc., in place of the cotton jacket, mustard and flaxseed poultices, blisters, cupping, camphorated oils and hot stupes. By a clay mixture I mean any one of the various proprietary preparations which are said to have an antiphlogistic action in inflammations of superficial and deep structures. The essential composition of all such clay mixtures is a base consisting of silicate of alumina and magnesia combined with salicylic acid, peppermint, wintergreen, eucalyptus, iodin or ammonium iodid and iron carbonate. The glycerin is added to give the kaolin or white clay its thick, jelly-like consistency so as to allow of easy spreading, while the other substances are added for whatever antiseptic power and pleasant odor they may impart to the mixture.

I take it that these mixtures are used by physicians partly because they are widely advertised, but mainly because their use is based on a so-called theory or rationale of therapeutic action, and into the latter I thought it would be of interest more thoroughly to examine.

In order to state this theory fairly, the following is quoted from the handsome little booklet lately sent out to physicians by the manufacturers of probably the most widely advertised clay mixture.

The "therapeutic action is based in theory on the following fundamental principles":

(*a*) This clay mixture is a "vasomotor stimulant; it stimulates the cutaneous reflexes, causing a contraction of the deep-seated and coincidently a dilatation of the superficial blood vessels; at the same time it attracts or draws the blood to the surface—bleeds, but saves the blood. Blood pressure on the overworked heart is reduced, the muscular and nervous systems are relaxed and refreshing sleep is invited."

(*b*) "The skin may be regarded as a permeable membrane, separating two fluids of different densities, the blood and the clay mixture. If the clay mixture is applied hot under such conditions, something definite happens, and that scientifically—an interchange of fluids, most marked toward the clay mixture; hence the deduction that the mixture acts through reflex action and dialysis, the latter scientifically, including the physical processes of exosmosis and endosmosis."

(In the above quotation the general term "clay mixture" has been substituted for the name of the special brand.)

Let us now examine the first of these so-called fundamental principles. If the clay mixture is a vasomotor stimulant and causes a contraction of the deep-seated and, coincidentally, a dilatation of the superficial blood vessels by stimulating the cutaneous reflexes, then it must stimulate the cutaneous nerve filaments, for otherwise there could be no reflex action. There are just two ways in which the clay mixture could stimulate the cutaneous nerves—by means of its heat or by means of its irritant properties. The latter means may be excluded at once, since the mixture is not irritant, being not even a mild rubefacient, the non-irritability of the preparation being one of the virtues most lauded by the manufacturers. So, then, whatever reflex action it produces must be due to the fact that it is applied hot. Every one is well aware that the chief reactions brought about by the use of moderate external heat are a dilatation of the cutaneous blood vessels, some excitement of the general circulation, and an increase in the amount of perspiration. Furthermore, this dilatation of the cutaneous vessels is probably due to the direct effect of the heat on the blood-vessel walls rather than to a stimulation of the sensory nerves, though, of course, this latter agency may be involved to some extent in the result. In any case, the *modus operandi* is the same as that by means of which a hot flaxseed poultice produces its results, and one is constrained to believe, in view of what follows, that heat may be applied more efficiently, and certainly less expensively, by means of a well-made flaxseed poultice.

HEAT EXPERIMENTS.

Two 1-pound cans were taken, one filled with the clay mixture and the other with flaxseed poultice. Both were heated to 80 degrees C., or 176 degrees F. They were now placed side by side so that all conditions were equal and the temperature taken every hour to determine which gave up its heat the sooner.

	Clay mixture.	Flaxseed poultice.
	80 C.	80 C.
After 1 hour	46	58
After 3 hours	21	27.5

The clay mixture gave up its heat in three hours, at the end of that time being at the room temperature of 21 degrees C., while the flaxseed mixture at this time still had a temperature of 27.5 degrees C. It is quite evident, then, that by means of a flaxseed poultice heat and moisture can be applied for a longer period than by means of the clay mixture, and this fact stamps the flaxseed poultice as more efficient than the clay mixture.

The further assertion is made that, as a result of this vasomotor stimulation, "the blood pressure on the overworked heart is reduced," and thus the favorable "remote" action is explained. We know that whenever the vasomotor centers are reflexly stimulated, either by heat or by irritation, the arterial blood pressure is somewhat increased, owing to the reflex constriction of the arterioles over wide areas of the body, especially of the abdominal organs. Hence, in all pruriginous skin diseases, the blood pressure is raised, and Oliver found that when a mustard pack was applied to the liver region the pressure went up from 105 to 135 mm. Hg. Furthermore, I found that in two cases in which a large, hot pack was applied to the chest and abdomen the pressure went up from 120 to 128 in one case, and from 132 to 141 in another. The effect on the blood pressure, as measured by the Stanton apparatus, was practically nil in two cases in which the clay mixture was used. In a third case the pressure increased from 143 to 155 mm. Hg, and, even though this increase may have been merely coincident, still the fact remains that there was no decrease in the blood pressure. The fallacy of the assertion that the blood pressure on the overworked heart is reduced thus becomes self-evident.

Let us now proceed to the second of the so-called fundamental principles, namely, that "the skin may be regarded as a permeable membrane, separating two fluids

* From the medical clinic of the Hospital of the University of Michigan. Read at the first annual meeting of the First Councilor District Medical Society of Michigan, at Detroit.

of different densities, the blood and the clay mixture. If the clay mixture is applied hot under such conditions something definite happens, and that scientifically—an interchange of fluids, most marked toward the clay mixture; hence the deduction that the mixture acts through reflex action and dialysis, the latter scientifically including the physical processes of exosmosis and endosmosis."

In order to test the validity of the above assertion, I proceeded in two ways: First, by making use of the clay mixture on patients at the university hospital who were suffering from pneumonia and from acute articular rheumatism. These experiments were carried out by Dr. Munson and myself. The mixture was applied hot, in a thick, even coat, following out the printed directions carefully, but the material was accurately weighed before application, and all evaporation guarded against during its use by means of coverings of oiled silk and bandages. After use the material was carefully scraped off and immediately reweighed. Thus the amount of fluid taken up could be accurately estimated.

In the second place, I made a series of experiments, using collodion sacs and dialyzers, with a membrane of fresh human skin, in order to test the dialytic power of the clay mixture. The results obtained by the case treatment were as follows:

CASE 1.—Mr. A. Diagnosis: Acute articular rheumatism. The clay mixture was applied to the arms one-half inch below the elbow, three-quarters way to the axilla; 240.6 gms. of the mixture used on the right arm gained during three and one-half hours' application 10.1 gms. in weight. A gauze pad (not heated) weighing 91 gms. and covering a like area of the left arm gained in three and one-half hours 8.2 gms.

CASE 2.—Mr. H. Diagnosis: Pneumonia. The clay mixture was applied to the most involved side; 203.5 gms. of the mixture gained .8 gm. in weight in three hours. Gauze pad (not heated) weighing 55.3 gms. applied to other side of chest gained .4 gm. in three hours.

CASE 3.—Mr. S. Diagnosis: Acute articular rheumatism and endocarditis. The clay mixture was applied to the chest; 235.2 gms. gained .9 gm. in six hours. A gauze pad weighing 58 gms. gained .4 gm. in six hours.

CASE 4.—Mr. S. Diagnosis: Myxedema and acute bronchitis 217.6 gms. clay mixture applied to the chest gained 1.7 gms. in four hours. A pad weighing 80 gms. (heated) applied to the other side of the chest gained 2.1 gms.

CASE 5.—Mr. F. Diagnosis: Acute articular rheumatism. The right knee was swollen and red; floating patella. As there was considerable fluid just beneath the skin and capsule, this was an ideal case for exosmotic action. A large area, 11 inches by 11 inches, was covered with a thick layer of the clay mixture, weighing 380 gms. The gain in weight after eighteen hours' application was 3.2 gms. A large heated pad alone, weighing 176.1 gms., was now applied to the same area and gained 3.7 gms. in weight in eighteen hours.

An analysis of the above results shows that, in the first case, the clay mixture gained 1.9 gms., in the second .4 gm., and in the third .6 gm., more fluid than a gauze pad similarly placed, but these gauze pads were not heated nor were they nearly so heavy as the clay mixture used. In Cases 4 and 5 the gauze pads gained, respectively, .4 gm. and .5 gm. more fluid than the clay mixture. In these cases the gauze pads were applied hot, but, again, were not one-half so heavy as the clay mixture used. On the whole, the gauze pads and clay mixture prove practically of equal value in taking up fluid from the skin. Furthermore, one is immediately convinced that no process of osmosis or of endosmosis is involved, for the much simpler explanation suffices, that the gain in weight is due to the absorption by the clay mixture or the gauze pad of the increased local perspiration, which latter, in turn, is due to the local application of continuous heat.

The results obtained in the dialysis experiments are also of interest. Large-sized collodion sacs were made by forming them over specially constructed test tubes. In one collodion sac was placed a sufficient amount of the clay mixture, removed from a freshly opened one-half pound can, to give a fairly thick, uniform inner coating to the sac. The total weight was 29.9 gms. This was suspended for twenty-four hours in a beaker containing normal saline solution, then removed and reweighed. There was an increase in weight of 4.6 gms. The second collodion sac was filled with absorbent cotton, the total weight being 18.46 gms. Suspended for twenty-four hours in normal saline solution there was a gain of 5.4 gms., or .8 gm. more than was gained by the clay mixture.

Two dialyzers were now constructed with membranes of fresh human skin. The epidermal layer was placed on the inner side of the dialyzer, so that the clay mixture would be directly in contact with it. Eighty-five grams of the clay mixture were then placed within one dialyzer and smeared over the membrane in a thick, even coating. The total weight was 265.7 gms. On removal, after twenty-four hours' suspension in normal saline solution, the gain in weight was 2.59 gms.

The second dialyzer was filled with absorbent cotton, so that the entire weight was 193.1 gms. On removal, after twenty-four hours' suspension in normal saline solution, the gain in weight was 3.15 gms., or .56 gm. more than gained by the clay mixture. The skin membrane in each case became softened and thickened, practically water-logged, before any fluid passed through. Whether such a condition ever occurs in the living human skin is extremely doubtful; indeed, the prevalent scientific opinion is that nothing passes from within outward through the intact skin except by way of the sweat glands. It follows, therefore, that we can rationally explain the increase in weight gained by the absorbent cotton only by absorption of fluid from the skin surface after secretion by the sweat glands, and, since absorbent cotton is more efficient, weight for weight, than the clay mixture when used under like conditions, the statement that the latter acts by means of a special process of dialysis becomes a *reductio ad absurdum*.

Whatever value the clay mixture may have in the treatment of boils is owing to the fact that it, like any other poultice, furnishes more or less constant heat and moisture; but the most ridiculous, and likewise dangerous recommendation is its use in open and septic wounds. Notwithstanding the fact that surgeons long ago discarded the use of poultices in all open-wound treatment, nearly every hospital surgeon can instance one or more cases like the following: Patient had a slight infected wound of hand; the attending physician applied a thick coating of the best known clay mixture, thus practically sealing off the infected focus. The pent up infection now rapidly involved the whole arm and the patient was brought to the hospital with a severe extensive septic cellulitis and areas of gangrene and sloughing. Such a case was quite recently treated in the surgical service at the university hospital.

In acute articular rheumatism the indications are to obtain rest and suitable support for the inflamed part and to administer the well-known internal remedies. If the local application of heat is desired, it can

be as well obtained by means of any one of our older, simpler and reliable methods.

The use of a clay-mixture poultice in pneumonia serves merely a single purpose, namely, a means for the application of heat to the chest wall. Aside from the demonstrated fact that a heated cotton pad or a flaxseed poultice is more efficient, the clay mixture has other serious disadvantages. Thus, I would point out that a thick layer of the heavy clay mixture applied to an infant's thin chest wall seriously impairs respiration; again, both in infants and in adults, the presence of the clay mixture makes it impossible to make with accuracy the careful physical examinations which here are especially needed, both to indicate the disease progress and as a basis for proper treatment. As a matter of fact, the use of heat in any form is rarely indicated in pneumonia, except when occurring in babies and in old people.

The use of cold by means of the icebag and coil is far more advantageous than heat. Cold not only relieves the pain as well as heat, but also relieves the cough and improves the breathing. Even in young children, a coil or light icebag, not kept on all the time, seems better than the use of heat, and in the cases above mentioned, where heat is useful, the cotton jacket should be used in preference to poultices. I may well end this discussion of the value of clay mixture and other poultices in pneumonia by quoting from Dr. Dock's article on "The Value of Internal Medication and Local External Applications in Pneumonia,"[1] in which he says:

> Two or three years ago it would have been unnecessary to speak of poultices in the treatment of pneumonia. They often relieve symptoms, but can usually be substituted without loss by the cotton jacket. Within a short time the poultice has been revived in a new form under the stimulating influence of printer's ink and an amount of physiologic and therapeutic misinformation that would make Rabelais laugh, but must make all judicious therapeutists grieve.

THE ETIOLOGY AND THE PATHOLOGY OF BRONCHOPNEUMONIA COMPLICATING MEASLES.*

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Bronchopneumonia is recognized as the most fatal complication of measles. While the pathology of the condition has been thoroughly investigated, there is yet much to learn regarding the etiology and the more minute pathologic changes which occur in the tissues. Many epidemics of bronchopneumonia following measles differ markedly in their clinical and pathologic features, and it is impossible to believe that such epidemics are always due to the same etiologic factor.

The occurrence of an epidemic of measles in one of the posts of the Department of California, many of the patients being sent to the U. S. Army General Hospital at San Francisco for treatment, and the complication of this condition by bronchopneumonia which occurred in a considerable proportion of these cases, has given me an opportunity to study minutely the pathology of this condition. In all, 89 cases were sent to this hospital for treatment; in 12 cases, nearly 13.5 per cent., bronchopneumonia developed, and, of these, 10 cases, nearly 84 per cent., terminated fatally.

On account of the high rate of mortality in this epidemic, and because of the similarity of the pathologic lesions in all the cases, I made a careful bacteriologic and pathologic study of each case, and I believe that the results obtained throw new light on the cause of this complication of measles. A complication which shows a mortality of nearly 84 per cent. certainly deserves a most careful study, in order to determine, if possible, the causation and character of the lesions present, in order that proper preventive and therapeutic measures may be taken to combat the disease. In this communication I shall not speak of the clinical phenomena present in these cases, but will give the pathologic conditions only.

All the cases occurred in young men between the ages of 21 and 30. In every case the disease began during the period of decline of the measles rash, although many authorities claim that bronchopneumonia is most apt to develop at the height of the eruption. The duration of the pneumonia in the fatal cases was as follows:

3 days	1 case	6 days	1 case
4 days	3 cases	7 days	1 case
4 days	2 cases	10 days	2 cases

The longest duration of the bronchopneumonia did not exceed ten days, while most cases proved fatal within a week. This epidemic was marked by great prostration of the patient and by all the symptoms of a septic intoxication. The pathology of the cases differed markedly, in many important respects, from that given by all authorities. Nine of the ten cases were accompanied by a purulent effusion into the pleura, which is stated by all authorities to be of very rare occurrence in bronchopneumonia following measles. Nine of the cases were also accompanied by abscess formation in the lung tissue, which by many good authorities is stated to be almost unknown in this disease. Beside these two marked differences in the pathology of the cases, there were numerous other pathologic lesions present in the organs which are of rare occurrence, and which show the intense virulence of the infection present in these cases. Because of these peculiarities, I believe that this epidemic is instructive, as showing what a terribly fatal disease bronchopneumonia may be in an adult when it complicates measles.

ETIOLOGY.

As I do not know the entire clinical history of these cases, I can not state whether or not exposure was a factor in producing the disease. In only three cases did the bronchopneumonia apparently originate in this hospital, and, in these cases, it was not due to exposure, as the ward was well heated and the patients were carefully nursed.

It is well known that the infecting poison in measles is especially active on the mucous membranes of the respiratory tract, and the accompanying bronchitis and coryza are depended on as initial symptoms in the disease. This peculiar action of the infective agent no doubt assists very greatly in the production of bronchopneumonia.

Cultures were made from the lungs, spleen and the contents of the lung abscesses, and in all cases examined the culture media showed a rather rapidly growing streptococcus, which in 6 cases was accompanied by the pneumococcus; in 1 case by the *Proteus vulgaris;* and in 3 cases by staphylococci. These bacteriologic findings

1. THE JOURNAL A. M. A., Dec. 10, 1904.

* Published by permission of the Surgeon General, U. S. Army. From the Annual Report of the U. S. Army General Hospital, Presidio San Francisco, Cal., 1904.

agree with those of most authors who have studied this disease. Thus Aufrecht states that the streptococcus pyogenes is the most frequent organism found in bronchopneumonia complicating measles, together with the pneumococcus. He says: "As the cause of secondary pneumonias following the infectious fevers the streptococcus is pre-eminent." He also mentions the staphylococci, pneumobacillus of Friedlander, colon bacillus and the tubercle bacillus as having been found by various observers. Williams states that the most frequent organisms found are the pneumococcus, *Streptococcus pyogenes,* and the *Staphylococcus pyogenes aureus.* Hale states that in secondary bronchopneumonia the pneumococcus appears in about 75 per cent. of the cases, but seems less potent in giving character to the disease than the streptococcus. He also mentions the occurrence of staphylococci, Friedlander's bacillus, tubercle bacilli and the colon bacillus. There can be no doubt that the streptococcic infection produced the symptoms which were most characteristic in these cases, and which were those of a septic condition. The organs presented the lesions of a profound septic poisoning which I believe without doubt was due to the streptococcic infection of the tissues.

I have not had time nor opportunity as yet to test the virulence of these cultures on animals, but I am satisfied that experiments will demonstrate that the lesions found in these cases can be reproduced in animals, if the proper methods of inoculation are pursued, and that it will be possible to show whether these lesions depend entirely on the streptococcus or on a combination of this micro-organism with the staphylococcus or with the pneumococcus. I intend also to determine, by experiment, the value of antistreptococcus serum in combating the lesions due to this organism.

I believe that the bronchopneumonia in these cases was due to a secondary infection of the respiratory tract by the streptococcus pyogenes, the tissue of the bronchi and lungs being especially susceptible to such infection because of the infecting agent of measles, and that the great mortality was without doubt due to the peculiarly favorable condition of the tissues to such infection.

PATHOLOGY.

The lesions of this disease first appear in the bronchi and bronchioles, being quickly followed by the appearance of a peribronchial pneumonia involving the air vesicles in the immediate vicinity of the bronchus. This peculiar distribution of the lesions gives rise to the involvement of lobules instead of lobes, as in croupous pneumonia, and while in a very few cases the distribution of the lesions may become lobar, in all the cases observed during this epidemic the distribution was lobular. In describing the macroscopic appearance of the lesions in the lung, I have used the terms red and gray splenization because in every case there was present the typical lesions which are ascribed to these two stages of the disease. I do not believe that it is possible in this disease, as it is in lobar pneumonia, to separate it into distinct stages, as the lesions found differ so widely in different portions of the affected tissue. While macroscopically such a distinction often can be made, when sections of the lung are studied, it will invariably be found that it is impossible to separate the lesions into these stages with any degree of accuracy. In describing the pathology I shall only speak of the pathology of the lungs, including the pleura, the kidneys, the liver, and the spleen, as it was in these organs that the most characteristic changes occurred. In order to give an idea of the macroscopic appearances noted in the pleural cavity and in the lungs, the portions of the autopsy records describing them are here inserted.

CASE 1.—The right pleural cavity is filled with pus; the left pleural cavity is free from fluid. The right lung is partially collapsed, and the pleura is greatly thickened and covered with lymph. The lobes of the lung are adherent to one another by recent adhesions. The organ is not crepitant except at the upper lobe. Externally the lower lobe shows a marked atelectasis. On section of this lobe, condition present is that of bronchopneumonia in the stage of red splenization. A large abscess cavity measuring 2 cm. in diameter and filled with greenish pus is found at the lower border of this lobe. There are no other abscesses in any portion of the lobe. On section of the middle and upper lobes, condition present is that of bronchopneumonia in the stage of gray splenization. A small abscess cavity is present in the middle lobe measuring about ½ cm. in diameter and filled with rather thick fluid. The quantity of pus in the right pleural cavity is 1,600 c.c.

CASE 2.—The right pleural cavity is filled with pus. The lung shows a marked atelectasis, large portions being collapsed. The pleura is greatly thickened and covered with lymph and the lobes are adherent one to another by recent adhesions. The lung is not crepitant. On section, the cut surface is greyish-red in color, the bronchi being very prominent and filled with pus. The appearance is that of bronchopneumonia in the stage of red splenization. There are no abscesses present. The left lung appears fairly normal except the lower lobe, which shows marked atelectasis and is not crepitant. On section of this lobe, the condition present is similar to that in the right lung. There is no evidence of abscess formation.

CASE 3.—The right pleural cavity is filled with grayish pus. The lung is collapsed and the pleura is greatly thickened and covered with lymph. Crepitation is absent, and on section the lung is found filled with abscesses varying in size from those hardly visible to the eye to one measuring 10 cm. in diameter. These abscesses are filled with greenish pus. A large abscess is found at the lower portion of the lower lobe, measuring 10 cm. in diameter. Another measuring 2 cm. in diameter is situated at the junction of the lower and upper lobe; and another 4 cm. in diameter, involves the lower portion of the upper lobe. Beside these larger abscesses there are numerous abscesses present throughout all the lobes measuring from .25 to .5 cm. in diameter. The left pleural cavity is free from fluid, and the lung crepitant throughout. There is some evidence of atelectasis in the lower lobe, and on section of this lobe the condition present is found to be that of bronchopneumonia in the stage of red splenization.

CASE 4.—The right pleural cavity is filled with a purulent fluid. The right lung is collapsed and the pleura greatly thickened and covered with lymph. On section of this lung cut surface is rather pale in color and the bronchi are filled with pus. There are numerous minute abscesses scattered throughout the organ, measuring about .25 cm. in diameter. The left lung appears normal.

CASE 5.—The right pleural cavity is filled with pus. The left pleural cavity is free from fluid. The pleura is greatly thickened. The lower lobe of right lung is of almost solid consistence, as is lower portion of the upper lobe. On section of the lower lobe, the cut surface is dusky red in color and streaked with pus, which oozes in large quantities from the bronchi. There are numerous areas of commencing abscess formation and a few well-defined abscesses. On section of the upper lobe, there is no evidence of abscess formation, but the lower portion of this lobe shows marked bronchopneumonia. The left lung appears normal.

CASE 6.—The left pleural cavity is filled with pus. The right pleural cavity is free from fluid. The left lung is adherent over the apex to the chest wall by old adhesions. The lower lobe of the lung shows considerable atelectasis, but is crepitant. On section of this lobe, condition present is that of bronchopneumonia in the stage of red splenization. The bronchi are filled with pus and there are a few small abscesses

scattered through the lobe. The right lung is crepitant, save in the lower portion of the lower lobe, which on section shows a condition of bronchopneumonia.

CASE 7.—The left pleural cavity is filled with pus, the right pleural cavity being free from fluid. The pleura, especially over the lower lobe of the left lung, is greatly thickened. The upper lobe of this lung is partially collapsed. The lower lobe is not crepitant and there are numerous firm tubercular feeling areas present at the lower portion of this lobe. On section of the lower lobe of the left lung numerous small abscesses are found filled with greenish yellow pus. The remainder of the lung tissue shows a condition of bronchopneumonia in the stage of red splenization. On section of the upper lobe, there is a marked atelectasis, but no evidence of very severe inflammation. The right lung is normal, save at the lower portion of the lower lobe, which shows a condition of bronchopneumonia, but there is no abscess formation.

CASE 8.—The left pleural cavity is filled with fluid, which is just becoming purulent. The right pleural cavity is free from fluid. The lower lobe of the left lung is of almost solid consistence. The upper lobe is crepitant in places, and in other places there is a marked atelectasis. The pleura over the lower lobe is very greatly thickened and inflamed. On section of this lobe, the cut surface is seen to be very dark red in color. The condition present is typical of bronchopneumonia. There are numerous irregular yellow areas present marking the site of small abscesses, the largest abscess found measuring 1.5 cm. in diameter. These abscesses are filled with greenish pus. The upper lobe of this lung appears normal, save for slight congestion. The lower lobe of the right lung is involved, the condition present on section being that of bronchopneumonia in stage of red splenization.

CASE 9.—The pleural cavities are free from fluid. The left lung is markedly congested externally. The pleura does not appear to be thickened, but there is considerable atelectasis present. On section, the cut surface presents typical appearance of bronchopneumonia. The remainder of this lung appears normal. The right lung is normal in appearance.

CASE 10.—*Clinical Findings.*—This case is of great interest, as beside the lung condition present this patient developed metastatic abscesses in the subcutaneous tissues throughout the body. An abscess was found lying beneath the clavicle, measuring 6 cm. in diameter and filled with greenish pus. This abscess did not involve the shoulder joint, but was situated in the muscular tissue. Another abscess was opened measuring 8 cm. in diameter lying in the subcutaneous tissue behind the scapula. A large abscess was opened in the psoas region, which contained nearly 500 c.c. of greenish pus. The entire subcutaneous tissue in the lower portion of the lumbar region and the upper portion of the gluteal was infiltrated with pus, and several abscesses were also present in the subcutaneous tissue of the thigh and leg.

Autopsy Findings.—The right pleural cavity is filled with pus, the left pleural cavity being free from fluid. The right lung is not crepitant and shows an extreme degree of atelectasis. The pleura is greatly thickened and covered with lymph. The lobes are adherent to one another by recent adhesions. On section of the lower lobe of this lung, the cut surface is seen to be very dark mahogany red in color; the bronchi are filled with pus. The condition present is that of unresolved bronchopneumonia. On section of the lower portion of the upper lobe, the condition present is similar to that of the lower lobe. An abscess is opened, which is about one cm. in diameter and filled with greenish pus. On section of upper lobe, upper portion, the condition present is normal. The left lung appears normal.

THE LUNGS.

One of the most interesting characteristics of this epidemic of bronchopneumonia was the almost constant occurrence of empyema. Of the 10 fatal cases, 9 presented this condition, and in only one case was the fluid semipurulent in character, in the others the material present being rather thick pus. All authorities state that pleurisy and empyema in bronchopneumonia following measles are very rare. Thus Williams states that pleurisy with effusion is a very rare condition. Aufrecht, in his extensive article on bronchopneumonia,[7] does not mention the occurrence of this condition at all, while von Jurgensen states that effusions into the pleural cavity are not often observed in connection with bronchopneumonia, no matter in what way the latter may arise, and that the pneumonia in measles furnishes no exception to this general rule. He also states: "In my opinion, the occurrence at all of a pleuritic effusion during or following measles is a matter of chance."

The constant occurrence of empyema in these cases well illustrates the extreme severity of the infection, the quantity of pus present varying between 500 to 2,000 c.c., the average amount being 1,200 c.c. Five of the cases presented empyema on the left side and four on the right, only one case showing no pus in the pleural cavity. The pus was invariably of a greenish-yellow color, and of considerable consistence. The pleura was greatly thickened, especially over the lower lobes of the lungs, and covered with greenish-yellow lymph, which in some places had partly organized, binding the lobes together. On removal of this lymph the pleura presented a dark purple color, and numerous atelectatic areas were visible beneath it, in some places causing slight contractions of the pleura. The average thickness of the pleura was about .16 cm.

Macroscopic Appearance.—Externally the lung where empyema had developed presented the appearance which has just been described. Where empyema had not developed the lung externally was of a reddish-purple color and there was always present marked evidence of atelectasis. The areas of the lung showing this condition were greatly inflamed and collapsed. On incision the cut surface of the lung varied in appearance according to the stage of the infection. In those cases in which death occurred within three days the condition present was always that of red splenization. The bronchi were distinctly visible and presented the following structure: The cavity of the bronchus was filled with greenish-yellow pus, the walls standing out as dark reddish-purple areas surrounding this accumulation of purulent material. The surrounding peribronchial tissue presented a bright red appearance, the pneumonic condition being most marked in this situation.

In cases in which the pneumonic process had lasted for a longer time the cut surface of the lung did not present so many evidences of acute inflammation, the color being reddish-gray or grayish, and it was in these cases that abscess formation was most common. The bronchi invariably were filled with pus and the surrounding tissue was more or less inflamed. The areas showing atelectasis, which were especially frequent in those cases in which death had occurred within three days of infection, were distinctly outlined, due to the intense inflammation present.

Abscess formation: I have already spoken of the curious frequency with which empyema complicated bronchopneumonia in these cases, and shall now consider the most important complication observed, namely, abscess formation, which was metastatic in character. The occurrence of abscesses following bronchopneumonia is so rare that many authorities have denied that such a condition is possible. Aufrecht states: "No less doubtful is the appearance of abscesses in catarrhal pneumonia. They are confounded with collections of pus inside

7. Nothnagel's Encyclopedia of Medicine.

the bronchial lumen, which are not infrequently found; and if the bronchus undergoes saccular dilatation may assume a spherical form." Real abscess arising from destruction of the pulmonary tissue Damaschino had already declared to be exceedingly rare.

This statement, coming from so high an authority, illustrates the extreme rarity of abscess formation in the ordinary epidemics of bronchopneumonia, but this epidemic was characterized by the almost invariable appearance of multiple abscesses of the lung of the fatal cases, which could by no chance be confused with collections of pus in the bronchi. As will be seen from the autopsy excerpts, abscesses were present, varying in number from one to twenty or more, and in size from those just visible to the eye to those measuring 6, 8 or 10 cm. in diameter. The smaller abscesses were not well defined as regards an abscess wall and were irregular in shape. The contents did not consist of pus, but of necrotic lung tissue of a semi-fluid consistency. The larger abscesses had a well-defined wall and were filled with a thick greenish-yellow pus. Only one of the cases showed no abscess formation. The abscesses in most cases were situated in the lower lobe of the involved lung.

In one case a large abscess was opened in the upper lobe. Beside the distinct abscesses present in this case there were numerous irregular areas in which the lung tissue was necrotic for a considerable space, and so soft as to be of almost fluid consistency. These areas were no doubt gangrenous in character. The abscess invariably occurred where the atelectasis was most marked. In three of the cases abscess formation was so extensive that the cut section of the lung appeared to be entirely covered with pus, and it was only by removing it that the several abscesses present could be distinguished. In other words, the lower lobes of these lungs had been almost entirely destroyed by abscess formation. In those cases in which death occurred after the fifth day the cut section of the lung was generally of a grayish color and there were small areas present, standing out distinctly because of their light color. These gray areas are no doubt explained by the cutting off of the blood supply to the affected air vesicles, and the consequent softening and necrosis of the cellular elements.

Microscopic Appearance.—In considering the microscopic pathology of the lung in these cases the following structures have to be taken into account: The bronchi, the air vesicles, the blood vessels, the connective tissue and the pleura.

The Bronchi: In all microscopic sections it was found that the bronchioles and the smaller bronchi were occluded by material consisting of leucocytes, blood corpuscles, and more or less necrotic material, unrecognizable as regards structure. This occlusion of the bronchioles was evidently produced by inflammation of the bronchial walls, leading to a proliferation of the columnar epithelium lining them and to the exudation of serum into the bronchial canal. The sections showed an extension of this inflammatory condition into the muscular tissue and the infiltration of this tissue by large numbers of leucocytes. Where the inflammatory process had gone no farther this was the only noticeable change in the bronchioles. In the majority of cases, however, the inflammation had extended to the peribronchial tissue, involving the air vesicles surrounding the bronchioles. In every case properly stained, immense numbers of streptococci could be observed in the exudation within the bronchioles, and in those cases in which pneumococci were obtained by culture, these organisms also were present in this situation. The blood vessels in the vicinity of the bronchi were invariably engorged, in many places they were entirely occluded by plugs consisting of red blood corpuscles, lymphoid cells and leucocytes. In every case examined rupture of the smaller capillaries had occurred, and hemorrhagic areas were formed, filled with red blood cells.

Air Vesicles: The sections showed that the air vesicles in the immediate vicinity of the bronchi—that is, in the peribronchial region—were first involved. The surrounding capillaries were entirely filled with blood and were greatly distended; in some places so much so that rupture had occurred, resulting in the destruction of numerous air vesicles which were replaced by great collections of red blood corpuscles, lymphoid cells and leucocytes.

Where rupture had not occurred, however, the air vesicles were distinctly outlined by these congested capillaries. In the immediate vicinity of the bronchi the outline of the air vesicles was lost; this was due, probably, to the extension and accumulation of cellular material similar to that contained within the air vesicles. Where the air vesicles were distinctly outlined they seemed in the early stages of the process to be entirely filled with a cellular exudate composed of the epithelium lining the air vesicles; numerous leucocytes and a few red blood corpuscles which had penetrated the surrounding capillaries. As the process extended, this cellular exudation was so great that in places rupture of the walls of the air vesicles occurred, and large areas of the lung tissue were composed of this material alone. Beside the cells which I have mentioned as occurring in the air vesicles there occurred two peculiar forms of cells, one resembling the giant cell in structure, being irregular in shape and containing several nuclei. These, however, were not giant cells, but were produced by the destruction of numerous cells which became merged in each other, thus giving the giant-cell appearance. The other peculiar cell noticed was mononuclear in character and filled with pigment. This pigment occurred in the form of minute granules or slender rods of a brownish-yellow color, and in many instances almost filled the cell. These pigment cells were especially numerous in the peribronchial tissue, as were also the giant cells. The cells lying within the air vesicles were undergonig various forms of degeneration, the most common being a vesicular swelling of the nucleus. In fact, this form of degeneration was present in almost every cell lying within the air vesicles. Fatty degeneration of the protoplasm and albuminoid degeneration were almost invariably present. There was also great distortion of the individual cells, and globular cells were especially frequent. The occurrence of mononuclear cells, both large and small, was very characteristic in all the sections. In fact, the vast majority of the cells present in the affected areas were mononuclear in character.

Where atelectasis had occurred the walls of the air vesicles had collapsed and were lying together, and at such places there was always a marked accumulation of small mononuclear and polynuclear cells.

The microscopic examination showed numerous places in which there was marked focal necrosis, evidenced by extensive degeneration of the tissue and by the accumulation of immense numbers of leucocytes, and a large amount of granular necrotic material. These areas no doubt in time would have given rise to abscesses, as the structure of the smaller abscesses exactly resembled these

areas, save that the necrotic material was greater in amount; the larger abscesses were composed of a well-marked abscess wall, fibrous in character, but always showing a marked infiltration by leucocytes. Numerous streptococci could be demonstrated in the areas of focal necrosis and also in the contents of the smaller abscesses.

The cells lying within the air vesicles, at some distance from the peribronchial tissue, had undergone hyaline degeneration; they presented a homogeneous appearance as the nucleus had entirely disappeared. This form of degeneration is undoubtedly due to the action of the toxic materials.

Blood Vessels: I have already spoken of the intense engorgement of the blood vessels, which include both the larger vessels and the capillaries. In some places this engorgement had been so great that extensive hemorrhages had occurred from the capillaries, producing areas composed entirely of red blood corpuscles and leucocytes. This condition resulted in the destruction of the lung tissue in such areas.

Connective Tissue: The connective tissue was not increased in amount, but rather decreased except where the larger abscesses were situated and around some of the larger blood vessels. In these regions the newly-formed connective tissue was invariably densely infiltrated by young connective tissue cells and leucocytes.

The Pleura: Sections of the lung showing the pleura invariably presented marked thickening of this structure and infiltration by leucocytes and young connective tissue cells. A characteristic and peculiar lesion present was the formation of cystic areas, which were filled with blood and degenerated cellular material, at the junction of the pleura and the lung. These cystic areas were no doubt due to the rupture of capillaries and the consequent collection of the contents of such capillaries in cavities lying between the connective tissue fibers and the pleura. In many sections these cystic cavities were so numerous as to form an almost unbroken chain at the junction of the lung tissue and the pleura. The outer layer of the pleura was invariably found to be covered with necrotic material and in this material streptococci and other bacteria were demonstrated. In all sections of the lung the absence of fibrin was very noticeable, even in those areas where resolution was commencing. It was but seldom that bacteria could be demonstrated in the contents of the air vesicles.

Summary.—The pathologic lesions present may be summed up as follows: A marked inflammation of the bronchioles followed by extension to the peribronchial tissue; in many cases the process did not stop here, but extended further into the lung tissue, producing an almost lobar pneumonia, in that nearly the entire lobe was involved. The peculiar lesions found in this epidemic were the occurrence of empyema and abscess formation in the lung.

LIVER.

Macroscopic Appearance.—The liver was invariably enlarged. The capsule was smooth, color of the organ yellowish red and consistence decreased. On section, in every case, fatty degeneration was found present; generally it was of localized extent and was especially marked near the capsule. Congestion of the organ was invariably present. The lobules were indistinct and the cut surface presented a rather cloudy appearance.

Microscopic Appearance.—The examination of sections of the liver showed a condition of fatty degeneration and acute venous congestion. The capsule was not thickened, but the connective tissue in the portal spaces was increased slightly in amount and was infiltrated by young connective tissue cells, and by mononuclear and polynuclear leucocytes. The capillaries were congested in many places, so much so that rupture had occurred, and large portions of the liver lobules were replaced by red blood corpuscles and leucocytes which had escaped from the ruptured vessels.

A peculiar conditon present was the great accumulation of mononuclear leucocytes in the intralobular capillaries. This condition occurred in every case and was observed in every section of the liver. It was so marked as to resemble the condition found in lymphatic leukemia. The mononuclear cells did not present any evidence of degenerative changes. It is impossible to explain the occurrence of this variety of cell in such great numbers in the liver capillaries, but that it is of some practical significance I can not doubt, as it occurred in every case and in every section which was examined.

In the cases in which fatty degeneration was present the protoplasm of the liver cells was replaced by fat granules and the nucleus had been destroyed or stained poorly. When this form of degeneration was not present various other forms of degeneration were noticed in the liver cells, the most common being the albuminoid and the peculiar forms of hyaline degeneration which I have mentioned as occurring in the cells of the air vesicles. The liver cells were invariably distorted and swollen, and in many marked pigmentary deposits were observed, the pigment being in the form of minute granules or slender rods resembling that which has been described as occurring in the pigment cells in the lung. Many of the liver cells showed an entire destruction of the nucleus and a loss of staining properties.

Summary.—The microscopic pathology of the liver may be summed up in marked degenerative changes in the liver cells, great congestion of the capillaries, the occurrence of large numbers of lymphoid cells in the intralobular capillaries, and pigmentary deposits in the protoplasm of the liver cells and areas of focal necrosis.

THE KIDNEYS.

In every case sections of the kidneys showed the lesions of a very severe hemorrhagic nephritis.

Macroscopic Appearance.—In each case the kidney was somewhat enlarged and appeared greatly congested externally. None showed the presence of cystic degeneration, and in all the capsule was not adherent, and the stripped surface was very greatly congested. On section the cut surface in all the cases was intensely congested, but the cortex and pyramids were distinct. The cortex was considerably thickened and the malpighian bodies greatly enlarged, standing out very prominently as bright red dots in the cortex. The intertubular capillaries were engorged, giving the cortex a markedly striated appearance. The pyramids were intensely congested. The mucous membrane of the pelvis in all cases was considerably congested and the pelvis contained more or less urine almost semipurulent in character.

Microscopic Appearance.—The connective tissue of the kidney was not increased in amount, and the capillaries, especially the intertubular capillaries, were greatly engorged with blood. A characteristic lesion in all the sections was the presence of immense collections of blood lying between the tubules and in them, these collections being due to the rupture of the over-distended capillaries. In many sections this hemorrhage into the tubules was so marked as to constitute the chief pathologic picture present. The epithelium lining the tubules showed various forms of degeneration, the most common

being fatty, albuminoid and hyalin. The cells were distorted in shape and could be seen in all stages of detachment from the basement membrane. Large numbers of granular, epithelial and blood casts were present in the sections, and the hyaline degeneration mentioned was a characteristic lesion occurring in the cells of the tubules and in the glomeruli. These cells stained homogeneously and poorly. No structure could be distinguished, even with the highest power of the microscope, nor could the distinction be made out between the separate cells. Where this condition had occurred in the glomerulus the structure was entirely lost, the capillary tuft appearing as a homogeneous, structureless, faintly staining mass. In many places the tubules were greatly dilated and entirely empty, the entire epithelial lining of the tubule having been destroyed and removed.

The changes in the glomeruli consisted in great congestion of the capillary tuft, in many instances leading to rupture, and the occurrence of hemorrhage, filling the entire glomerular space. Where this condition was not present there was marked proliferation of the epithelium covering the tuft and lining Bowman's capsule, resulting in an entire obliteration of the capsular space. Areas of focal necrosis were observed in the glomeruli and rarely in the tubules and surrounding tissue. In two cases, metastatic abscesses, microscopic in size, were observed, consisting of a collection of necrotic material, mononuclear and polynuclear leucocytes, and bacteria, chiefly streptococci. In the capillaries were observed the same preponderance of mononuclear cells which were so conspicuous in the capillaries in the sections of the liver.

Summary.—The pathologic changes in the kidney consist, then, of lesions of a very severe acute nephritis, characterized by the occurrence of hemorrhage into the tubules and glomeruli, and by the occurrence of areas of focal necrosis and hyaline degeneration. A peculiar condition found in the tubules in which the hemorrhage had occurred consisted in the entire destruction of the epithelium lining the tubules and the covering of the basement membrane by a row of red blood corpuscles. In every section this appearance was observed, the kidney tubule appearing to be lined by red blood corpuscles instead of by tubular epithelium.

THE SPLEEN.

The pathologic lesions in the spleen consisted in acute venous congestion and the crowding of the splenic sinuses with various forms of cells, the most common being mononuclear leucocytes and macrophages.

Macroscopic Appearance.—In all the cases the spleen was greatly enlarged, generally being about twice as large as when normal. The capsule was tense and the organ of a dark reddish-purple color externally. The consistence was decreased, and the weight increased. On section the cut surface was dusky red in color, with numerous areas of a dark mahogany color marking the site of hemorrhages into the parenchyma. The malpighian corpuscles were invisible, or very slightly visible as light reddish areas, although microscopically these were found to be considerably enlarged. The substance of the spleen was almost diffluent in character.

Microscopic Appearance:—The cells in the splenic sinuses contained a large amount of pigment. The sections showed that the capillaries of the organ were greatly congested, and here again hemorrhages were very frequent, resulting in the production of large hemorrhagic areas replacing the normal splenic tissue. The connective tissue of the spleen was not increased in amount. The malpighian corpuscles were invariably enlarged and contained numerous pigmented cells resembling those found in the lungs and in the liver. The lesions in the spleen were not so characteristic as those found in the other organs, but were typical of an acute septic condition. In three cases small areas of focal necrosis were present in the spleen, resembling those found in the lungs, liver and kidneys.

FOCAL NECROSIS AND HYALINE DEGENERATION.

On account of the constant appearance of areas of focal necrosis in the lung, liver, kidneys and spleen, a more detailed description of this condition may be of interest. These areas were situated in the lung, in the exudation in the air vesicles, and also involved, in many instances, the capillaries and walls of the vesicles. In the liver they were situated within the lobules and involved the liver cells in the locality affected. In the kidney they were found chiefly in the cortex, involving, in some instances, the tubules alone, and in others both the tubules and the glomeruli, and in still other instances, portions of the glomeruli alone were affected. In the spleen they were found in the malpighian corpuscles, and also involved the splenic sinuses and the cells within them. This condition has been observed in some of the infectious diseases, such as typhoid, tuberculosis, and in forms of poisoning due to chemical agents; in these cases the focal necrosis was undoubtedly due to some toxic material circulating in the blood, as in very few of the areas showing this form of degeneration could any bacteria be demonstrated. The chief pathologic lesions present were degeneration of the nuclei of the cells in the region involved, and the hyaline or granular degeneration of the protoplasm, with loss of distinction of the separate cellular elements. The nuclear changes consisted in the breaking up into a number of particles and granules of the chromatin and dispersion of these chromatin particles throughout the entire affected area. In many instances the nucleus, while it retained its form, had lost its staining properties, due largely to the destruction of the chromatin. The cells in the involved areas were distorted in shape, and where the process had extended still further they were entirely destroyed, all that remained being a mass of granular deposit entangled in some peculiar material resembling fibrin. While these changes were noticeable in the cells of the tissues involved, the most marked change consisted in a great accumulation of leucocytes which infiltrated the mass of necrotic material. Many of these leucocytes showed granular, fatty and hyaline degeneration, some of them being almost entirely destroyed. In none of the areas observed was there any evidence of regeneration of the tissue. Microscopically these areas consisted of a mass of more or less degenerated cellular material derived from the cells normally found in the connective tissue infiltrated by leucocytes, and in a few instances by bacteria, chiefly streptococci. I believe that the cause of this condition was toxic material in the circulating blood, this material probably being present in the form of toxalbumins. The condition also may have been produced in part by thrombosis occurring in the capillaries, thus cutting off from the affected tissue its source of nutrition. Whether these areas of focal necrosis were due to the toxins produced by the streptococci or to poisonous materials produced during the measles infection it would be impossible to say, but I am inclined to believe they were due to the secondary infection by streptococci.

The form of degeneration which I have called hyaline, occurring so frequently in the cellular elements of the

lungs, liver, kidney and spleen, consisted in a peculiar degeneration of the protoplasm and nucleus, evidenced by great swelling and distortion of the cell, disappearance of the nucleus, and peculiar staining reactions. Areas showing this form of degeneration stained homogeneously, and the most careful examination did not demonstrate any peculiar structural change except the entire disappearance of the cell, nucleus, and the replacement of the normal protoplasm by a mass of hyaline material without distinct structure. Such areas were clearly mapped out in sections from the areas surrounding them by the fact that they took the stain homogeneously throughout, all trace of distinction between the cells being entirely lost. The name hyaline degeneration is generally applied to a peculiar change occurring in the connective tissues, and it is necessary to differentiate this form of hyaline degeneration from the form widely known as hyaline change.

The form of degeneration occurring in these cases affected the cellular elements as well as the connective tissue in the regions involved. It affected not only the cells in the connective tissue, but the capillaries also, the entire structure of the organ in such regions being lost and replaced by a homogeneous staining mass in which no structure could be recognized. There can be no doubt that this peculiar condition was due to toxic materials circulating in the blood. In all the organs the cellular elements were especially affected and the change was most noticeable in the kidneys, where the cortex showed the process in its greatest severity.

From a summary of the macroscopic and microscopic pathology of the organs from these cases of bronchopneumonia it is evident that the infection was of a septic character, producing very severe and rapidly fatal lesions in the organs mentioned. The peculiar pathologic lesions present were the occurrence of hemorrhages in all the organs, areas of focal necrosis, hyaline degeneration, empyema, and abscess formation in the lungs, kidney and spleen, and the occurrence in the capillaries of the liver and kidney, and in the air vesicles of the lung, of large numbers of lymphoid cells. I believe that it is justifiable, from the lesions present, to conclude that this epidemic of bronchopneumonia complicating measles, and showing such a high mortality, was due to secondary infection of the diseased mucous membrane of the respiratory tract by streptococci, with consequent production of a bronchopneumonia associated with a pyemic infection due to these organisms.

Special Article

IMMUNITY.

CHAPTER XII.

PRECIPITINS.

Because of their scientific importance and certain practical features the serum-precipitins should receive something more than the incidental mention which has been given them under agglutination and in other chapters.

Bacterial Precipitins.

In 1897 Kraus discovered that bouillon cultures of the organisms of typhoid, cholera and plague, from which the bacteria had been removed by filtration, would cause precipitates when mixed with their respective antiserums. The reaction is specific. As stated later, however, this specificity holds only when those quantitative relationships are observed which were found so essential for the agglutination test. The precipitins of Kraus are the bacterial precipitins. He proposed their use for the identification of micro-organisms. If, for example, one has in hand a culture which he suspects to be that of the typhoid bacillus, it may be grown in a liquid medium, the cells removed by filtration, and the filtrate mixed with a known anti-typhoid serum; if a precipitate occurs when the serum is sufficiently diluted, the reaction indicates that the organism in question is the typhoid bacillus. Inasmuch as precipitins are formed during the course of some infections it may be possible to use them in clinical diagnosis, but for either bacterial or clinical diagnosis the agglutination test is more readily performed and interpreted.

Phytoprecipitins and Zoöprecipitins.

In addition to bacterial precipitins we have also to recognize the phytoprecipitins. These are produced by immunization with albuminous substances of plant origin, as ricin and albumin from grains, and their action is specific for the homologous substance. Zoöprecipitins are those which are obtained by immunizing with an albuminous fluid from some animal. Through the work of Wassermann and Uhlenhuth, of Nuttall and others, it has been demonstrated as a general law that immunization with an albumin from whatsoever source gives rise to the formation of a precipitin which manifests its action only against the particular albumin used for the immunization. Hence, the albumin of a particular serum, in some unknown respect, is different from that of all others; it is special to the species.

Lactoserum.

Immunization with milk causes the formation of a precipitin which throws down the casein of the milk used for injection, but not that of milk from another species. The milk of the goat may be differentiated from that of the cow by the use of the lactoserum.

Likewise, after the injection of egg-albumin a precipitin is formed which is specific for the type injected.

Precipitogen, Precipitin and Precipitate.

Three substances are open to study in the precipitation reaction. First, the fluid or substance which is used for immunization; it bears the name of precipitogen, just as the analogous substance is called agglutinogen, as indicated in the preceding chapter. Second, the specific constituent of the precipitating serum-precipitin. Third, the precipitate, which is a consequence of the reaction between precipitogen and precipitin. We are able to recognize in this instance the actual end-product of a reaction, a condition which is not so easily realized in other "immunity reactions." It is true, of course, that little has been learned concerning the nature of the end-product; its chemistry is as dark as that of the proteids in general.

Formation of Precipitin.

As stated in the chapter on "Natural Immunity," some serums normally have the power to cause precipitates in other serums. Precipitins for egg albumin and goat serum have also been found in extracts of organs, although at the same time they were absent from the serum of the animal. In this case the active body exists normally in the cells in the form of sessile receptors, as they have been called, and by the process of extraction they are brought into solution. During immunization these same receptors are stimulated to overproduction and are thrown into the circulation as free precipitin receptors, or serum-precipitin.

The power of forming precipitins may be widely distributed among the organs; the leucocytes apparently have this function, and in one case they were formed locally in the anterior chamber of the eye.

For the artificial production of precipitins the precipitinogenous fluid may be injected into the veins, peritoneal cavity or the subcutaneous tissue. Within from four and a half to five days the precipitin has been formed to such an extent that it may be demonstrated in the serum of the immunized animal.

As in the case of agglutinin formation, not all animals have

equally the power of forming a precipitin for a given albumin.

Concerning Autoprecipitins and Isoprecipitins.

This point, as related to serum precipitins, is of particular importance, and involves a factor which is of no consequence in agglutinin production. In the first place, an animal will not form a precipitin which is active against its own serum; i. e., by bleeding an animal and reinjecting the serum a specific precipitin is not formed. If formed it woud be an autoprecipitin, and, as a general rule, animals do not form antibodies for their own tissue constituents. Again, animals are unlikely to form antibodies for the tissue constituents of other members of the same species; these, when formed, are called isobodies. Schütze immunized thirty-two rabbits with serum from the rabbit and obtained an isoprecipitin from only two of the number. In the third place, animals do not readily form antibodies for the tissue constituents of other animals which zoölogically or biologically are closely related; immunization of the guinea-pig with the serum of the rabbit, a pigeon with that of a chicken, or a monkey with human serum, are procedures which usually do not yield precipitating serums.

Chemically, little is known of precipitins. They are thrown down by certain salts in conjunction with the euglobulin fraction of serum, and are destroyed by those substances which alter albuminous bodies, as acids, alkalies, pepsin and trypsin.

Nature of Precipitin.

When the serum is heated to from 50° to 60° C. its ability to cause a precipitate in the homologous precipitogen is destroyed, although it may be demonstrated that the power to combine with the latter is unchanged. Hence precipitin, like agglutinin, is composed of two groups, a binding or haptophorous, and a ferment-like group in which the active property resides; the latter is the coagulin of the molecule. When precipitin has lost its coagulin it becomes precipitoid, and as precipitoid it may unite with precipitogen and thereby may inhibit the action of a fresh precipitin which may be added later. When a precipitating serum has partly degenerated into precipitoids, that is, when it consists of a mixture of precipitin and precipitoid, it is found that the latter have the greater affinity for precipitogen, hence, in concentrated solutions of the serum, precipitoid may be present in sufficient quantity to bind all the available precipitogen and the reaction would not occur in spite of the presence of active precipitin. This is spoken of as specific inhibition.

Specific Inhibition.

The action is analogous to that of toxoids and agglutinoids, and the phenomenon is mentioned again in this instance in order to emphasize the fact that certain laws of action are common to many of the immune substances however much they may differ in their actual structure and in the nature of the changes they produce in their specific antitypes. Precipitoids, like toxoids and agglutinoids, are formed by long standing, by the action of heat and light and by other injurious influences.

The molecule of precipitin, like that of agglutinin, is a receptor of the second order (Fig. 6).

The attempt has been made to produce antiprecipitins by immunization with precipitating serums; this is immunization with an immune serum. It is reported that antibodies have been obtained for lactoserum, but not for bacterial precipitins. There is a limit to the cycle of antibody formation.

Antiprecipitins.

Precipitogen may be defined as any albuminous substance immunization with which will cause the formation of a specific precipitating serum. In addition to those mentioned above, albuminous urine, pleural exudates, ascitic fluid and that from hydrocele are precipitogens. The same is true of some albuminous fractions of serums, as globulin; one may speak, in this instance, of antiglobulin. Kraus believes that the precipitogen of bacterial filtrates also is associated with albuminous molecules, but although the tendency is to accept this relationship as general, Jacoby obtained by tryptic digestion of ricin, a precipitogen which gives no albumin reaction. On the other hand, certain precipitogens are destroyed by pepsin and trypsin, a fact which indicates their albuminous nature.

Nature of Precipitogen.

A given precipitogen sometimes consists of a portion which is resistant to heat and another which is destroyed at low temperatures. Certain precipitogens, for example egg albumin, when heated to rather high temperatures, lose their ability to participate in the precipitation reaction, although they retain the binding power for precipitin; therefore, precipitogen also consists of a binding group and another group which is similar to the coagulin of the precipitin molecule. In view of the fact that the two substances which enter into the reaction have similar structures it is difficult to say which assumes the passive and which the active rôle. The degenerated precipitogen is also called precipitoid. In order to distinguish the two precipitoids one must speak of the precipitoid of precipitogen, and the precipitoid of precipitin. The precipitoid of precipitogen yields precipitin by immunization; hence it is all the more analogous to the toxoids.

Precipitoid Derived from Precipitogen.

The precipitate which is caused when a bacterial filtrate is mixed with its specific serum forms in from one-half hour to several hours, and appears as a coherent white sediment which in the course of twenty-four hours has left the overlying fluid quite clear. The action of the antiserum precipitins is somewhat more rapid, and in either case sedimentation is hastened by placing the fluids at body temperature. As intimated above, the occurrence of the reaction depends on an intact condition of the coagulin groups of both substances. A low concentration of organic acid favors, whereas mineral acids and alkalies inhibit or prevent precipitation; a neutral reaction is indifferent. The precipitate contains albumin, which, however, has become changed so that it is not susceptible to the action of trypsin. The two in combining have in some way shut off the point of attack for trypsin. In milk, casein is precipitated by the lactoserum. As in agglutination, the presence of salts is necessary for the formation of the precipitate.

Precipitate.

Group precipitation is not so pronounced a feature of precipitins as we found group agglutination to be in connection with agglutinins, yet it exists to a certain degree and is of the utmost practical importance in attempting to differentiate serums by the precipitation method. Although bacterial precipitins are highly specific, it is important to observe the principle of serum dilution which was emphasized under agglutination, in order to obtain the adventitious precipitins in such small amounts that they do not interfere with the chief precipitin.

Group Precipitation and Specificity.

That feature of the precipitation reaction which has the most practical bearing has to do with its medicolegal use in the detection of human blood. For this purpose it has supplanted the specific hemolytic serums, which are to be referred to later. In the course of investigations it was found that even the smallest dried blood stain, although months old, when mixed with its homologous precipitating serum, would cause the formation of a sediment. It remained for certain important details to be worked out in order to render the test sufficiently reliable for forensic work. The specificity of the reaction appeared to be threatened somewhat, when it was learned that the serum of monkeys undergoes precipitation when treated by an immune serum which is specific for human serum. This is, again, group precipitation. Adventitious precipitation is, in fact, so widespread that some have felt justified in speaking of a mammalian serum reaction. Hence, in order to insure specificity it has become necessary to use precise quantitative methods in differentiating bloods or serums by this method. The immune serum to be used must be diluted to some extent, for the reason indicated; but even a more important precaution is the volumetric measurement of the precipitate which is formed. The technic of Schur may

Forensic Use of Precipitins.

be cited. Test tubes are so made that the lowermost portion consists of a graduated capillary tube; 1 c.c. of the fluid to be tested is placed in one of these tubes, to which is then added 0.2 c.c. of the precipitating serum. The mixture is kept at body temperature until the reaction is complete, and the sediment is then thrown into the capillary portion of the tube by centrifugation for a stated period of time (twenty minutes). The volume of the sediment may be read by the scale Nuttall allows the sedimentation to occur naturally, with the tubes in an upright position. Other serums naturally must be used as controls. If the "unknown" blood is suspected of being human, a control tube must be prepared in which a similar amount of known human serum is submitted to the same test. If the two tubes yield similar amounts of precipitate when they are treated with 0.2 c.c. of a precipitin for human serum, the identity of the "unknown" blood as that of man is established. To obtain the specific precipitin it is customary to immunize rabbits with human serum for several weeks.

Another practical feature of the precipitation test has to do with the differentiation of meats. A precipitogenous substance which is characteristic for the animal may be extracted or pressed from the tissue, and will yield a precipitate when it is mixed with a precipitin of homologous nature. This is of particular interest in those countries in which the meat of the horse is put on the market as a substitute for that of beef.

Identification of Meats.

The possible relationship of precipitation to bacterial agglutination was referred to in the chapter on "Agglutination."

In connection with precipitation and also agglutination certain work with the so-called colloids may be mentioned briefly.

In view of the fact that the protoplasm of the body and the albuminous constituents of serum have a close relationship to, or really are, colloids, investigators have studied certain reactions which occur among the known colloids with the expectation that the reactions of protoplasm and those of serums would receive some elucidation.

Colloids and the Reactions of Immunity.

Substances which go into solution were classified by the English physicist, Graham, as crystalloids and colloids. Crystalloids include many inorganic salts. Usually they form clear solutions in water and exhibit an osmotic pressure, supposedly because of the small size of their molecules. They diffuse with some rapidity and many are conductors of electricity. Organic colloids comprise such substances as albumin, starch, dextrin, tannin, gelatin and many gums. By proper treatment of certain metals and their salts inorganic colloids may be prepared; for example, ferric hydroxid and the sulphids of antimony and arsenic. When colloids are dissolved in water the solutions are often more or less opaque, and are sometimes opalescent because the particles or molecules are of such size that they polarize light. They exist in water either as a solution of molecules of great size or as a suspension of considerable particles or aggregates of molecules. In some instances the particles are so large that they may be seen by a magnification of 1,000 diameters, while in others no degree of magnification renders them visible with the ordinary microscope. By the use of the recently devised ultramicroscope, however, the finest particles in some colloidal solutions may be discerned. Colloidal substances, such as albumin, diffuse very slowly and exert little or no osmotic pressure, supposedly because of the large size of the particles. They do not conduct electricity, but the particles themselves react to the electric current by alterations in the direction of their motion (i. e., toward the positive or the negative pole), and moreover carry electric charges themselves.

Properties of Colloids.

The features of colloids which bring them into relation with the subject in hand are their coagulable nature in certain instances and the fact that their particles may be agglutinated or precipitated by the addition of minute amounts of salts (electrolytes). In this connection one naturally recurs to the observation of Bordet, which was mentioned in the preceding chapter, concerning the inagglutinability of micro-organisms so long as salt is withheld from the solution. This analogy would suggest that the bacteria after their union with agglutinin may conduct themselves as colloidal particles. When colloids are precipitated by salts, it is thought that they so alter the electric condition of the particles that the surface tension is decreased, and as a result of this change neighboring particles coalesce in such quantities as to produce a visible sediment.

Precipitation of Colloids by Electrolytes.

Neisser and Friedberger have studied certain colloids, having in mind the similarity of their behavior to serum reactions. They found, for example, that two of our common dyes which are colloids and bear opposite charges of electricity (eosin and Bismarck brown), give rise to a precipitate when the two are mixed. Furthermore, the specific inhibition which may be obtained in the reaction with serum precipitins (see above) could also be realized with the eosin and Bismarck brown.

The agglutination of bacteria and of red blood cells may also be accomplished with colloids. Landsteiner agglutinated erythrocytes with colloidal silicic acid.

The facts which have been cited, and others which have appeared in recent literature, assume all the more significance when we bear in mind the colloidal nature of the albuminous portion of serum with which the "immune bodies" are so closely associated.

(To be continued.)

Clinical Reports

AN UNUSUAL CASE OF ANEMIA.*

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AND
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SAN FRANCISCO.

Patient.—F. J., aged 36, a native of Germany, by occupation a teamster, entered St. Luke's Hospital Sept. 21, 1903.

History.—Family history unimportant. He drank to excess and smoked moderately. Six years ago he dropped a piece of iron on the first and second toes of the right foot, which accident was followed by "blood poisoning." Three years ago his right eye was destroyed by a shot. About two months ago he had a severe cold and a nosebleed, which lasted two and one-half hours; he lost a great deal of blood. Since then has felt weak and faint. He had nosebleed once since, but not so severely. Bowels were constipated.

Examination.—Patient was fairly well developed and nourished. Face was pale with dilated capillaries. Right eye was artificial; left reacted normally. Tongue was pale, flabby and tremulous. Lips were pale. Chest was fairly well developed. Heart dullness extended 2 cm. to the left of mammary line; sounds rather weak; first sound at mitral area impure, second pulmonic accentuated. A systolic murmur was heard over pulmonic area, and heard also very faintly over aortic area, and transmitted to vessels of the neck. In the lungs nothing abnormal was found. Liver and splenic dullness were normal and abdomen was not distended. Right leg and foot edematous, and discolored in small areas or patches, almost to the knee. A large gangrenous-looking ulcer was situated on the outer aspect of the lower third of the right leg, about 7 by 10 cm. in area; the ulcer had a slight odor. This ulcer had been present about a year. Temperature 100 F., pulse 96, regular; right pulse small; left could hardly be felt; respiration 24.

Urine: 56 ounces, pale, alkaline, cloudy. The specific gravity was 1,014, and the urine contained triple phosphate crystals and amorphous urates.

Blood examination: Red cells, 1,150,000; hemoglobin, 30 per cent.; leucocytes, 7,300; differential: polymorphonuclears, 6 per cent.; small lymphocytes, 91 per cent.; large lymphocytes, 2 per cent.; eosinophiles, 1 per cent.; no nucleated red cells; no marked poikilocytosis; no polychromatophilia.

* Read before the California Academy of Medicine, 1904.

Later History.—September 27: About noon there was a hemorrhage from the nose, blood exuding from both nose and mouth. This hemorrhage lasted a considerable time, the patient meanwhile complaining of headache. This was followed the next day by another hemorrhage though not so severe, and again the following day (September 29) there was a prolonged severe hemorrhage. He grew progressively weaker following these hemorrhages, and on the morning of the day before his death he had a chill. His temperature from the time of his admission until September 25 fluctuated from normal to 101, gradually rising to 103 on the night of the 28th, when it slowly fell, reaching 97.4 before his death, which occurred October 1.

September 30: A blood count revealed 770,000 red cells; hemoglobin, as nearly as could be estimated, 10 per cent.; leucocytes, 2,300; polynuclears, 6 per cent.; small lymphocytes, 90 per cent.; large lymphocytes, 4 per cent.; no eosinophiles seen; there were no nucleated reds, but some poikilocytes.

An examination of the stools failed to reveal any evidence of intestinal parasites or ova.

Treatment.—Medication consisted in iron and arsenic; also calcium chlorid in dram doses by the rectum, and adrenalin chlorid hypodermically. Mechanical means were also used in the effort to control the hemorrhages.

Autopsy.—Two hours after death: Body is that of a medium-sized man. General nutrition is rather good. Postmortem rigidity is almost absent. There is slight lividity over back and buttocks. There are a few small petechial spots in skin of both arms, and larger petechial spot over left clavicle. Femoral glands on both sides are just palpable. No other superficial lymph glands can be made out. Right ankle is somewhat swollen, but does not pit on pressure. There is a large, deep ulceration 6 by 4.5 cm. just above external malleolus posteriorly, and a small superficial ulceration to right of large ulcer, also very small superficial one to left. Edge of deep ulcer shows little induration. Floor of ulcer is covered with pale, dirty-looking sloughy material. Small white scar is on dorsal surface of left hand, and old white scar 2.5 by 1 cm. below patella on outer surface of leg. There is a large scar on anterior surface, upper third of thigh 6.5 by 4 cm.

Abdomen: Subcutaneous fatty layer, average 1.2 cm. Peritoneum pale, smooth, shiny, no fluid. Liver 2.5 cm. below costal margin. Spleen, 11.5 by 5 by 2.2 cm.; weight, 108 gms. Capsule slightly thickened; consistency firmer than normal; rather pale. Adrenals, both sides normal. Left kidney, 11.5 by 5.8 by 4 cm.; weight, 166 gms. Remains of fetal lobulations seen; very pale; capsule adherent in a few small areas; kidney markings distinct, about normal. Right kidney, 11 by 5.8 by 4 cm.; weight, 161 gms.; capsule adherent over a few small areas; cortex contracted at these places. Bladder distended, containing about 500 c.c. of urine; appears normal. Prostate normal. Liver, 27.2 by 17.8 by 7.5 cm.; weight, 1,830 gms.; very pale, yellowish brown color. Diaphragm, fourth rib, right side; fourth interspace, left side. Omentum well supplied with fat. Gall-bladder duct patulous, contains about 150 c.c. dark greenish bile. Stomach contains about 300 c.c. of well-digested material. A number of small cyanotic areas about 5 mm. in diameter scattered over surface of stomach. Some postmortem digestion. Intestines pale, otherwise apparently normal. Lymph glands along inferior vena cava vary in size from the size of a millet seed to that of a shelled almond. Some glands enlarged also along right iliac vein.

Heart: Weight, 304 gms.; muscle, pale brownish color, rather flaccid consistency. Aorta: Circumference highest part of arch, 5.6 cm.; a number of small yellow patches seen on intima.

Liver: Moderate amount of fat, mostly in periphery of lobules; a small amount of brown pigment in some of liver cells; this pigment gives the iron reaction.

Pleura: No fluid on either side; no adhesions; pleura pale, glistening.

Left lung, 22.2 by 5.5 by 3.8 cm.; marked anthracosis; otherwise normal. Right lung, 19 by 10.5 by 4 cm.; marked anthracosis.

Peribronchial lymph glands: A few enlarged to about the size of a shelled almond; anthracosis and induration.

Microscopic Examination.—Heart: Small amount of brown pigment in some of the muscle cells.

Spleen: Slight thickening of capsule; some brown pigment in a number of the cells of the spleen pulp.

Lungs: Marked anthracosis.

Adrenals: Normal.

Kidneys: Considerable increase in interstitial connective tissue in the small areas over which capsule was adherent; otherwise normal.

Ulcer of leg: Floor of ulcer is formed by young connective tissue with hyperemic veins; some infiltration with lymphocytes; small amount of necrotic material on surface of floor of ulcer; practically no arteritis of surrounding arteries.

Stomach: Small cyanotic areas show hyperemia and a considerable exudation of fluid rich in fibrin into the submucosa. Mucous membrane of stomach shows some atrophy.

Large intestines: Mucous membrane shows considerable atrophy.

Peribronchial lymph glands: Most of gland tissue replaced by fibrous tissue showing heavy coal pigmentation; the small portion of lymphoid tissue which remains shows a brown pigment in many of the cells.

Pancreas, adrenals, prostate, bladder, esophagus and small intestines normal.

Glands from inferior vena cava: Sinuses are much dilated and contain a large quantity of blood, also a number of cells that look like swollen lymphocytes containing brown pigment; the lymphoid tissue of the glands shows many swollen cells containing brown blood pigment. Also some pigment outside of the cells; this part of the gland is very hyperemic.

Piece of bone taken from skull shows fatty marrow with very few cells; no change to the lymphoid type, or the red type of marrow.

Brain: A few small hemorrhages beneath arachnoid; one anterior to fissure of Rolando along longitudinal sinus; one small hemorrhage over left parietal lobe.

Bacteriologic Examination.—Cultures were made from the following organs and incubated both under aërobic and anaërobic conditions. No growth was obtained from the following: Brain membranes, brain substance, pericardium, right ventricle, liver, peritoneum, right pleura, left pleura, right lung, left lung, left kidney. A number of colonies of colon bacilli were obtained from the spleen and from the right kidney.

Smears from ulcer showed a number of capsulated bacilli, rounded at ends, and varying in size; they were non-motile and negative to Gram's stain. Plate cultures developed two classes of colonies, one a *Bacillus mucosus capsulatus*, the colonies being of a creamy, gelatinous consistency, producing a luxuriant, creamy growth on potato; milk litmus acidified; glucose agar not fermented. A guinea-pig injected peritoneally died within twenty-four hours; same capsulated bacillus recovered from all the organs. The other class of colonies may be described as follows: A very opaque, creamy colony on agar agar; edge of colony irregular; potato, a very heavy luxuriant creamy growth; milk, litmus and glucose bouillon unchanged; gelatin not liquefied. Smears show a short, very coarse, almost coccus-like bacillus, which is not pathogenic for guinea-pigs.

Remarks.—This anomalous case presented several perplexing difficulties regarding its classification. The character of the onset and the relative lymphocytosis suggested acute lymphatic leukemia. True, there was no leucocytosis at the time the patient entered the hospital or subsequent thereto, but the leucocyte count is so easily influenced by intercurrent infections and other causes, such as certain drugs, that the absence of leucocytosis was not sufficient cause for ruling this out. Cabot[1] cites a case complicated by suppurating cervical glands, with a rapid decrease of the leucocytes subsequent to sepsis, the patient dying with a marked leucopenia, the leucocytes numbering 471 on the day of his death. Numerous other

1. Cabot: Clinical Examination of the Blood, 4th ed.

instances of rapid decrease of the leucocytes are cited by the above-named authority and by others; Dock,[2] having recently reported several such phenomena, one in which influenza supervened, being followed by a reduction of leucocytes from 367,000 to 5,000. In a patient suffering from myelogenous leukemia whom I have had under my care for over a year, and whose leucocytes had never been under 70,000, they recently dropped suddenly to 7,000 following pregnancy. I am not sure that this decrease was due to her pregnancy; I merely cite the coincidence. Among the various causes to which the decrease is ascribed, I have not seen pregnancy mentioned in the literature.[3]

The lymphocytosis of acute lymphatic leukemia is usually of the large-cell variety, whereas in the case here reported there was a preponderance of the small lymphocytes. I do not believe that acute or chronic lymphatic leukemia can be differentiated solely by the blood picture. It is difficult to draw arbitrary lines. The personal equation enters largely into the distinction between large and small lymphocytes. Indeed, with the more modern conception of hemogenesis, we must reclassify our large lymphocytes, and recognize, with Pappenheim and others, a lymphoid cell with special morphologic and staining characteristics by which it can be differentiated from the large mononuclear lymphocytes. Fraenkel calls attention to the identical blood picture in some cases of both the acute and chronic forms of the disease, and admits that a chronic case may take on the acute form. The literature cites several instances of preponderance of the small cell. Rosenberger[4] last month reported a case of the acute form, with small lymphocytes ranging from 22 per cent. to 92 per cent., though always in excess of the large cell; and also mentioned several other cases culled from the literature. Churchill of Chicago, at the same time, reported 15 cases of acute leukemia in early life, in 12 of which the small lymphocyte predominated. Reed[5] reported, in 1902, a case running an acute course, in which the small cell was in excess, where there were no evidences of involvement of either spleen or lymph glands, but where the examination of the bone marrow "proved conclusively that the lymphocytosis arose from proliferation of the lymphoid cells in the bone marrow, and death occurred before any other organ in the body showed involvement." Of course this conception of the origin of lymphocytes is diametrically opposed to the theory of Ehrlich, who taught that lymphocytes were derived exclusively from the lymph glands; but the new theory that the bone marrow contains lymphoid elements, is supported by most recent investigators, and such claim is very largely substantiated by the existence of the above cited case, and many others, where there was no involvement of the lymph glands. I have elsewhere stated my belief in the existence of a close relationship between the myelogeneous and lymphatic forms of the disease with a common pathologic basis in the bone marrow.[6] It is unfortunate that in this case we are unable to present satisfactory data concerning the condition of the bone marrow, for without this a doubt exists regarding its leukemic nature.

The intense anemia, the moderately high color index and the marked leucopenia just before death, were suggestive of pernicious anemia. A very careful search failed to reveal any nucleated erythrocytes during the life of the patient, and only recently two megaloblasts were found from preserved smears in counting over 1,400 leucocytes. This represents a search of more than half a cubic millimeter of blood, for it will be remembered his leucocyte count was 2,300 the day before his death. I believe the absence of nucleated red cells in severe cases of pernicious anemia can be satisfactorily explained on the ground that the intense hemolysis does not permit of the compensatory lymphoid and megaloblastic changes in the bone marrow, which changes "do not form an essential part of the pathology of pernicious anemia." Cabot calls attention to such cases under the term "aplastic anemia," the bone marrow being hypoplastic and incapable of responding to the demand for increased red cell formation, made necessary by the tremendous hemolysis. Lipowski[7] reports such a case in which an escharotic poison, taken with suicidal intent, was the cause of a hemolysis, which brought the red cells down to 2,115,000 and the hemoglobin to 18 per cent. Muir[8] reported a case of "purpura," with a similar onset and clinical history to the one under consideration, in which the red cells were reduced to 640,000, the hemoglobin to 12 per cent., with an intense leucopenia. In neither of these cases were nucleated red cells present, and in both the relative number of lymphocytes was much in excess. Dr. P. K. Brown at a meeting of this body recently reported a case of a child with a similar blood picture. If we accept the statement that the bone marrow changes form no essential part of the pathology of pernicious anemia, but are compensatory in their nature, and if, in cases where the hemolysis is intense, the compensatory activity of the blood-forming tissue in the bone marrow can not assert itself, then I do not believe there is sufficient justification for placing these severe cases of pernicious anemia in a class by themselves.

The autopsy findings were suggestive of pernicious anemia, and this is particularly noticeable in the hemolymph glands. To Warthin[9] of Ann Arbor we are indebted for much of our knowledge regarding the importance of these organs in hemolysis. He found in a series of eight cases of pernicious anemia, enlargement of these organs in most of them, together with dilation of the blood sinuses, and increase of phagocytes containing disintegrating red cells and pigment. It has elsewhere been shown that these bodies have normally a hemolytic function, the difference in their function in pernicious anemia being one of degree only. It is remarkable that most textbooks on the pathology of this disease are either silent regarding the condition of the lymph glands, or state that they are normal in this disease. In the case here reported these glands were enlarged, the sinuses were much dilated, and contained a large quantity of blood, also a number of cells which looked like swollen lymphocytes containing pigment. These large cells were also present in the lymphoid tissue of the glands.

While this report is somewhat incomplete in that the bone marrow was not thoroughly studied, and the spinal cord was not removed and examined for the changes usually found in the dorsal columns in cases of pernicious anemia, I believe that with the evidence herewith presented, this case must be placed in the category of pernicious anemias.

2. Dock: Amer. Jour. Med. Sciences, April, 1904.
3. In the case of pregnancy here referred to the uterus was emptied of its contents by dilatation and curettement, which was followed by a gradual increase in the number of leucocytes, and at the present time of writing, nine weeks after pregnancy was terminated, they numbered 44,000. There has been, however, a relative decrease in the number of myelocytes.
4. Rosenburger: Amer. Jour. Med. Sciences, October, 1904.
5. Reed: Amer. Jour. Med. Sciences, 1902.
6. American Med., Aug. 13, 1904.
7. Lipowski: Deut. med. Woch., 1900.
8. Muir: British Med. Jour., Sept. 29, 1900.
9. Warthin: Amer. Jour. Med. Sciences, 1902, August, 1904.

A POINT IN TREATMENT OF FRACTURED LOWER JAW.

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A 6-year-old boy fractured the neck of the lower jaw on one side. To make a diagnosis it was necessary to give an anesthetic. The boy had just eaten his dinner, so the anesthesia was put off three hours. After the dressing was completed vomiting occurred, emptying the stomach of the boy's meal. The food had become liquefied, however, and no damage came to the boy, because he succeeded in stretching the dressings sufficiently to let the mouth open.

The query is, what would have happened if the dressings had not stretched, and particularly if the anesthetic had been administered as soon as the accident occurred?

It would seem that a child under those circumstances would surely suffocate.

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APPENDICITIS AND THE PUERPERIUM.

A subject of perennial interest is the origin of the infections which so often prove fatal after childbirth. At one time there was a universal impression that puerperal fever had its source in the patient. Then, as the result of an accumulation of evidence, there came the definite conclusion that the infectious material was usually introduced from without and was due either to the carelessness of the physician or of the midwife in attendance, or to some mistake by the nurse or by the patient herself. In this, as in most things in medicine, it seems not unlikely that the pendulum of opinion swung too far and that there is about to be differentiated a series of cases in which the origin of the infectious material will be found, as was formerly thought, within the patient's tissues.

One thing is very clear, micro-organisms of various kinds, under certain circumstances, may become so walled off as to be rendered innocuous and yet retain their vitality within the tissues for many years. This has been demonstrated with absolute certainty in such diseases as tuberculosis and typhoid fever, and it is no longer a matter of surprise to find that an abscess in bone developing many years after an attack of typhoid fever may yet contain the typhoid bacillus in pure culture. In the same way, it seems not unlikely that certain intra-abdominal conditions, after being for the moment acute, may become so walled off as to be a source of no further immediate danger and yet the micro-organisms present may retain their vitality. Acute oöphoritis, for example, may cause a protective reaction sufficient effectually to occlude the infected part from surrounding tissues, and, in the same way, an appendicitis that has gone beyond the catarrhal stage may lead to the formation of adhesions that effectually protect the peritoneum.

In both cases, however, virulent micro-organisms remain, and it is easy to understand that during the serious intra-abdominal disturbance consequent on the enlargement of the uterus during the puerperium and then its rapid evacuation and firm contraction immediately after labor, the adhesions formed may be so disturbed as to permit the escape of such micro-organisms into the tissues. In not a few cases of puerperal fever it is noted that there are no signs of infection in the vagina itself or in the uterus. In such cases, also, local treatment of the external genital tract does not produce any material modification of the symptoms. Instead, then, of considering that the infection in such cases must necessarily be from the exterior, it seems much more justifiable to trace it to some internal source. Under such circumstances, a careful history of the patient may disclose the occurrence of attacks of appendicitis or of oöphoritis that would give a clue to the origin of the infectious material that is now producing the septic process.

Such considerations are valuable, not only as helping to solve an important problem in etiology, but also because of the indications which they furnish for treatment in cases that are otherwise so hopeless. When there is a history of any previous symptoms of appendicitis, an exploratory operation, undertaken not long after the first symptoms of fever are noted, might prove life saving by furnishing the opportunity for the evacuation of the infectious material that was finding its way into the tissues. Indeed, whenever the genital tract does not furnish any evidence of infection having taken place from without, a very careful investigation of all the antecedents of the patient should be made in order to determine whether there may not be some hopeful indication for surgical interference for other conditions. Besides appendicitis, a history of a previous abdominal operation that may have been followed by the formation of adhesions between the intestinal and the genital tracts must not be forgotten, as along such adhesions intra-intestinal micro-organisms not infrequently find their way. This fact is recognized by genito-urinary specialists, who find traces of colon bacilli in the bladder whenever adhesions between that viscus and the intestines are known to exist.

In a word, there would seem to be a splendid opportunity for a more thorough individual study of cases of puerperal fever than has hitherto been the case, since it has been the custom, as a rule, to group all such cases indiscriminately under the head of infection due to carelessness on the part of the attending physician or nurse. It is probable that not a few medical attendants have been brought under suspicion of carelessness in technic when in reality the source of the infectious material was some previously existent microbic condition newly aroused by the disturbance of anatomic relations within the abdomen and by the increase of physiologic function consequent on nature's effort to absorb as rapidly as possible the superabundant tissues left after labor has been completed.

THE ESSENTIAL LESION IN HEMOPHILIA.

There is probably no disease which is so characteristic clinically and so devoid of characteristics pathologically as hemophilia. The hereditary character of the affection, the peculiar transmission through the female line to the male descendants, the tendency to continued hemorrhage from slight injury or spontaneously, the subcutaneous hemorrhages, and the acute joint lesions

present a clinical picture which can hardly be confused with any other condition. It is true that in rare cases, such as those in which kidney hemorrhages are the only symptom, the diagnosis is not always so clear, but these are the exception.

The underlying cause of this interesting condition, which has been recently studied by Sahli,[1] has been a source of investigation and discussion since the disease was first discovered. The anatomic findings in fatal cases have been so inconstant and so uncharacteristic that either a new theory or a modification of an old one has been put forward by almost every new investigator. Early in the history of the disease, the theory that a hypoplasia of the heart and vessels was the causal factor was advocated because Virchow had found these lesions in certain cases investigated by him. Those who advocated this theory apparently overlooked the fact that Virchow had described essentially similar lesions in an entirely different disease, chlorosis. Later, when this theory was seen to be untenable, other conditions in the vessels or in the blood itself were held responsible for the disease. Some writers claimed that the vessels had unusually thin walls, others that they were ruptured with abnormal ease, and still others that a condition of fatty degeneration was present. The blood itself was said by some authors to contain an insufficient amount of fibrin or to lack in the power of coagulation from other unknown and mysterious causes. Still later, the observation that in some cases the heart was hypertrophied led to the assumption that increased vascular tension caused the hemorrhages. Even the theory of infection was dragged in by some writers to explain this typically hereditary disease. Recent investigations show that some of the hypotheses cited can not be backed up by observation, while others are probably in part correct. Furthermore, it is also evident that factors hitherto unnoted play a part. Changes in the blood itself, so far as its alkalinity, its molecular concentration, and its fibrin content are concerned, have not been found. The same can not be said with regard to its coagulability, as the researches of Sahli show distinct changes in this property of the blood.

The discordant observations of preceding observers on this point are shown to have been due to the fact that the coagulability varies at different stages of the disease. In the intervals between the periods of activity the blood shows a well-marked lack of coagulative power, evidenced by an increased length of the coagulation time. During the active period of the disease, however, the coagulation time is normal in length or even shorter than normal. This increased coagulability probably represents a reaction on the part of the organism as a result of hemorrhage, as it is most marked in patients who have lost a good deal of blood. The change in the coagulability alone will not explain the disease, and it seems probable that another factor comes into play. This is, most likely, a deficiency, hereditary in character, of the vessel walls, and perhaps also of the cells of the blood-forming apparatus. There is good evidence that in normal intravascular clotting of the blood the formation of fibrin is aided by certain products of the cells of the vessel wall itself. It seems likely that these secretions, which are presumably of the nature of ferments, are lacking in hemophilic patients. Inasmuch as the difficulty in hemophilia is not a lack of extravascular coagulation but a lack of intravascular clotting, an entirely different matter, such a view seems reasonable. It is certainly more reasonable than any hypothesis so far advanced, and has the advantage of a considerable support from observed facts.

If we assume this explanation of hemophilia to be reasonably likely, a revision of the therapeutics of this condition should follow. As it is, the therapeutics of this disease are purely empirical, or are based on the assumption that the hemorrhage is similar in character to the hemorrhage due to trauma or to pathologic conditions which erode the vessels. Many remedies have been used on the assumption that they might do good when it would have been better to question whether they could not do harm. It would certainly seem irrational to use the ordinary internal hemostatics to combat a hemorrhage due to a constitutional cell deficiency. These objections do not, of course, have the same force with regard to external applications, especially mechanical ones. It seems within the bounds of possibility that organotherapy, in the form of local or even of intravascular applications of macerated blood vessels, might be of value, if the enzymes which their cells secrete are sufficiently stable. The question is one which must be investigated further.

1. Zeitschrift für klin. Medicin, vol. lvi, Nos. 4-5.

SPECIAL TRAINING FOR EMPLOYES IN STATE INSTITUTIONS.

An edifying illustration of the general statement in our editorial of March 11 on the "Necessity of Special Training for Administrative Medical Work" is afforded by the present situation in Illinois. We pointed out in the editorial in question the need of expert knowledge and of special training for the administrative work of public institutions and of public boards. So palpable has been the deterioration of many public charitable institutions under the recurring political changes of the last dozen years that public opinion has compelled the introduction into the present legislature of a bill for a state merit law. As the agitation has been great enough to pledge both political parties and the governor of the state to such a measure, we may assume that a law will be secured which will protect all the appointments to the state public institutions from the control of politicians. This goes further than our suggestion, since it involves the 2,500 or more positions in the penal and charitable institutions, most of which are not filled by physicians. It is plain, however, that the filling of these

places also with experts would be in the line of medical progress. How are we to obtain these experts? That is the question which another bill now before the Illinois legislature undertakes to solve. This bill provides an appropriation of $15,000 yearly for the training of state employes in and by the State University.

Any training of experts for public service is still more or less experimental in this country; but this measure which actually provides that the university shall take a hand in the training of a prison guard or of an asylum attendant is bold, indeed. It will seem to the Philistine foolishness and to the politician a stumbling block, but to the student of criminal psychology and to the alienist it will seem a welcome public recognition of a condition that should be remedied. Every one at all acquainted with hospitals for the insane knows that the physician can only give the briefest personal attention to each patient and that the whole system of treatment depends for its efficacy on the attendant. In the same way it is the prison guard—the shop foreman—in whose hands, if anywhere, the reformation of the prisoner must lie. Yet these positions are filled by people chosen haphazard or, worse, "pulled" in.

We are not fully informed as to the details of the proposed training. In fact, we judge that they must be worked out somewhat tentatively by the university authorities. The German state universities train physicians admirably for institutional service, but they offer no direct suggestions for the proposed scheme whose democratic character is, indeed, so purely American that it will necessarily have to make its own precedents.

The training ought certainly to be practical, the student should be given a happy balance of clinical work and of theoretical teaching. There should be enough theory to make him understand the clinic and respect his task. We judge that much of the instruction would necessarily be given in the form of lectures by experts in the institutions themselves. Whatever the methods which experience might develop for the suggested teaching, the very proposal puts a new face on the otherwise cold and barren aspect of a civil-service law, whose more obvious virtues are merely negative. To keep plundering and ignorance out of public institutions should not be sufficient to satisfy us. We must fill these institutions with medical spirit and with scientific ardor. We must demand for the baffling task of restoring the mentally and morally sick the finest ability and the best training.

TRUTH AND POETRY CONCERNING URIC ACID.

XIII.—CONCLUDED.

After Burian and Schur had demonstrated that the uric acid excreted consists of two components, an exogenous part dependent on the purins of the food and independent of the patient's individuality, and an endogenous part, individually different but constant for each individual, it became important in studying uric-acid excretion in gout to ascertain (1) whether the amount of endogenous purin is altered, and (2) whether feeding purins to the gouty patient affects the exogenous component as in health. The examinations made by Kaufmann and Mohr[2] in 1902 indicate that the values for both components are normal in gout. As yet no one has tested the power of the body in gout to form uric acid synthetically in comparison with that power in health; this should be done.

After 1880, a number of investigators opposed Garrod's ideas regarding diminished uric-acid excretion in gout. Bouchard, in 1885, declared that the excretion is not diminished between the attacks of acute gout, but instead is normal in amount or even increased, and Mordhorst's (1891) figures average distinctly above normal. Since then, Vogel in 1893, Klemperer in 1895, and Camerer in 1896, have carefully studied uric-acid excretion in gout and obtained similar results. An analysis of all the data available affords no convincing evidence that gout, in the chronic stage or in the intervals between acute attacks, has any characteristic influence on the amount of uric acid excreted. Kolisch,[3] in 1895, believed that he could explain the contradictory results of his predecessors by a comparison of the amount of uric acid excreted with that of the alloxuric (xanthin or purin) bases. According to his view, uric acid is formed in the kidneys, from xanthin bases, and the amount of uric acid excreted depends on the functional condition of the kidneys. He asserted that the total alloxuric nitrogen is always increased in the urine of gout, but in the early stages the kidneys are able to convert the xanthin bases into uric acid and the uric acid in the urine is increased, while, in the later stages, when the function of the kidneys is impaired, the xanthin bases are less completely converted into uric acid and are partly given off as such in the urine, the amount of uric acid excreted in the urine becoming normal or even diminished in amount. These findings excited much interest, but careful controls made by Weintraud in 1895, Rommel in 1896, Schmoll in 1896, and Badt in 1896, failed to confirm them, so that Laquer,[4] summing up the whole matter, was able to state positively that in gout the alloxuric bodies behave in no constant or characteristic fashion; the alloxuric bodies are not increased *in toto* in the urine, nor is the excretion of the bases increased over that of uric acid. During the decade just past, investigators in numbers have confirmed this statement. We may therefore regard it as well established that the excretion of uric acid and the purin bases in chronic gout, and in acute gout in the intervals

2. Kaufmann, M., u. Mohr, L.: Beiträge zur Alloxurkörperfrage und zur Aetiologie der Gicht. Deutsch. Arch. f. klin. Med., lxxiv, 1902, 348, 586.

3. Kolisch, R.: Ueber Wesen und Behandlung der uratischen Diathese, Stuttgart, 1895. See also Ueber Wesen und Behandlung der Gicht, Wien. klin. Wochft., viii, 1895, 787.

4. Laquer, B.: Ueber die Ausscheidungsverhältnisse der Alloxurkörper im Harn von Gesunden und Kranken. Verhandl. d. xiv, Kongr. f. inn. Med., 1896, 333.

between attacks, goes on within normal limits. Despite this restriction of the excretion to normal limits, there is one feature of the excretion, however, which is striking—there is a great variability in the purin excretion as contrasted with the constancy of the values in the same circumstances in health.

We must emphasize the fact that the relations dwelt on at some length above do not hold for the acute gouty attack. In it the uric-acid excretion is very typically altered. Views regarding the behavior in the acute attack were for a long time conflicting, but, thanks to the laborious researches of the younger His[5] and his colleagues, the matter has been definitely settled. The acute gouty attack is ushered in by a diminution in the amount of uric acid excreted, this diminution tending to precede the attack by two or three days. When the joint symptoms begin to appear, the amount of uric acid excreted increases and remains for some days considerably above the average level; then it gradually sinks until the average level of excretion is regained. If several joints are involved, there is a corresponding depression of excretion preceding every new attack, followed by the typical increase. Only when the attacks follow each other very irregularly does the picture become confused. This behavior of the uric-acid output in acute gouty attacks has been confirmed in this country by Futcher of Johns Hopkins; in Germany, Magnus Levy's findings agree with those of His regarding the increased output in the attack, though they do not seem to indicate a premonitory diminution. Wiener,[6] in his admirable review, epitomizes the whole subject with the statement, "While, therefore, we dare not assume that in gout as a whole the excretion of uric acid behaves in any characteristic way, we may grant that there is constantly a greater excretion in the acute gouty attack than in the free intervals, even if the excretion does not exceed normal limits; probably the attack is preceded by a somewhat diminished excretion."

It seems likely that this behavior of the uric-acid excretion during the acute attack is due first to a retention and then to a "sweeping out" of the previously retained uric acid. If this be the case, the fact is of the highest interest in connection with the pathogenesis of the acute attack of gout, but it is of no help in explaining the constant increase of uric acid in the blood in gout. Indeed, the study of uric-acid excretion has thus far thrown no light on this dark point; it does not tell us whether the increase in the blood is due to diminished destruction, to increased formation, or to retention.

5. His, Jr., W.: Untersuchungen an Gichtkranken. Wien. med. Blätter, xix, 1896, 291. See also Ueber Gicht, Schmidt's Jahrb., ccl, 1896, 266, and (with Cohnheim, Freudweiler, Respinger and H. His), Die Ausscheidung der Harnsäure im Urin der Gichtkranken mit besonderer Berücksichtigung der anfallsfreien Zeiten und bestimmter Behandlungsmethoden. Deutsch. Arch. f. klin. Med., lxv, 1900, 156.

6. Wiener, H.: Die Harnsäure in ihrer Bedeutung für die Pathologie. Ergebn. d. Physiol., II, Abt. 1, 1903, 377.

OUR ATTITUDE TOWARD THE NOBEL PRIZES.

One not infrequently hears the fact that so far no American has received a Nobel prize commented on in a manner disparaging to American investigators. As already pointed out in these columns,[1] the work of Reed and his colleagues in the etiology of yellow fever, and the far-reaching consequences thereof, is more than sufficient to show the injustice of this reflection, so far as medicine is concerned, and perhaps similar injustice is done to American work in the other lines of achievement of which notice is taken in the award of these prizes. Be that as it may, however, it appears not unlikely that as yet names of Americans deemed worthy of the consideration of the awards committee have not been presented in the proper way by some association or university.

In its issue of April 1, 1905, the *Medical News* recommends that some association—and why not the American Medical Association?—take up the task of submitting a proper report to the Nobel committee, and mentions the yellow fever work as most deserving of immediate recognition.

In connection with this matter it may not be amiss to point out another American discovery of fundamental importance in the development of our knowledge of mosquito-borne diseases, and that is the discovery in 1893 by Theobald Smith of the parasite of Texas fever (*Pyrosoma bigeminum*), and the demonstration by Smith and Kilbourne that this hematozoön is transmitted by a tick (*Boophilus bovis*). This beautiful work cleared up the etiology of this widely spread disease and exercised a powerful influence on the trend of the investigations of the next few years that culminated in the discovery of the rôle of the mosquito in malaria. Indirectly, no doubt, the work of Smith and Kilbourne also influenced the work of Reed and his co-workers. The importance of the discoveries in Texas fever lies in the fact that they gave us the first demonstration of an intermediate host in an infectious disease of this class. They pointed the way for the subsequent work in regard to other diseases of the same class. In the event that an effort is made to secure Nobel prizes for American work, it may be just to consider also the work in Texas fever.

It is now several years since the discoveries in Texas fever and yellow fever were made, and the fact that formal application has not yet been made for Nobel prizes on their account may argue that little thought has been given the matter. While no one believes that the Nobel prizes can have much direct influence on investigators and investigation, yet we owe it to our own investigators to secure for them all adequate rewards in our power. We therefore heartily support the *Medical News* in the effort to set in motion the machinery necessary properly and forcibly to present the necessary statements.

1. Jan. 2, 1904, p. 38.

THE PREVENTION OF IDIOCY AND IMBECILITY BY CASTRATION.

The governor of the state of Pennsylvania in his wisdom has seen fit to veto a bill passed by the Pennsylvania legislature and directed toward the prevention, by means of castration, of procreation on the part of idiots and imbeciles in public institutions, and he has chosen to administer what he appears to consider a rebuke to too enterprising anatomists and surgeons. The governor, who by the way holds the opinion that his kinsman, the late Senator Quay, was as great a man as Webster or Clay, bases his objection to the bill on the fact that the nature of the intended operation is not sufficiently described, its only qualification being that it shall be the "safest and most effective" in the minds of a neurologist, a surgeon and a physician. By a process of subtle reasoning, the governor reaches the conclusion that the "safest and most effective" method of preventing procreation among the individuals under consideration would be to cut off their heads, but he is charitable enough to express the view that this means would probably not be resorted to, and only some part of the human organism would be destroyed. He has made the startling discovery that "scientists, like all other men whose experiences have been limited to one pursuit and whose minds have been developed in a particular direction, sometimes need to be restrained." It is his gratuitous judgment that "men of high scientific attainments are prone, in their love for technic, to lose sight of broad principles outside of their domain of thought." He thinks "a surgeon may possibly be so eager to advance in skill as to be forgetful of the danger to his patient." Further: "Anatomists may be willing to gather information by the infliction of pain and suffering on helpless creatures, although a higher standard of conduct would teach them that it is far better for humanity to bear its own ills than to escape them by knowledge only secured through cruelty to other creatures." The governor, who was a judge on the bench before he was placed in his present position by "the organization," reasons that "if idiocy could be prevented by an act of assembly we may be sure that such an act would long ago have been passed and would have been approved in this state, and that such laws would have been enacted in all civilized countries." The learned governor is not without views on the etiology of idiocy. "This mental condition," he states, "is due to causes many of which are entirely beyond our knowledge. It existed long before there were ever such inmates of such institutions." It would thus appear that the action of the governor was not taken merely because the exact nature of the operation contemplated by the act, namely, removal of the ovaries or testicles or vasectomy, was not specifically mentioned in the text of the bill. Rather, he sets his opinion against that of conservative experts, who have recommended the operation as looking toward the elimination of the most important factor in the continuance of the disorders at which it is aimed, namely, the transmission of the tendency to insanity.

THE PERIL TO THE COMMUNITY OF ALCOHOLIC MANIA.

As a people we are slow to learn certain facts. The recent murder in cold blood of a helpless and innocent wife and mother by a maniacal husband, whose insanity was of that type which regularly occurs in the alcoholic, reminds us that these frightful tragedies recur with distressing frequency. The relatives of those who abuse alcoholic beverages ought to be taught the danger signals. Whenever a drinking man begins, without cause, to suspect the virtue of his wife and the honor of his friends, it is time to confine him where he can do no harm, at least until the poison is out of his brain. Failure to do this is to invite murder in its most revolting forms. All this is well known to the members of the medical profession, but the physician is seldom asked for advice in such cases, and if he were his counsel would only rarely be followed. No man in the community is more dangerous to his family and to the public than the heavy drinker when he reaches the stage of alcoholic delusion that is marked by unfounded suspicions as to the conduct of those whom he naturally and in fact should most trust. When a man begins to harbor such delusions it is the instant duty of his friends to put him where he can do no harm and can get no more liquor.

MEDICINE AND POLITICS IN RUSSIA.

A striking fact was reported in the Associated Press dispatches from Moscow, April 5. In view of the probability of a cholera epidemic, a congress of physicians has just been held in that city and, as an essential first step toward the warding off of the threatened scourge, the members advise a complete and radical change in the whole government and administration of Russia. They demand, in fact, the immediate calling together of a constituent assembly; the stoppage of the war, which has thrown the country into excessive poverty; the reform of the tax laws and the whole general program of the leading Russian reformers of the day. Without all these, they claim, it would be impossible to carry out the needed sanitary measures. In the present unfortunate condition of the country, the political problems have, to this extent, become also the medical ones, and it would not, under ordinary conditions, such as exist under less autocratic governments, be especially remarkable to find the medical profession freely expressing its mind under such circumstances. In Russia, however, the case is different, and every one who has advocated or endorsed the propositions submitted runs a serious risk. Nevertheless, it appears that their endorsement was general, thus showing that our confrères have the courage of their convictions. Acting for the public good, they have not hesitated to risk, perhaps, even life and liberty. THE JOURNAL has often insisted on the duty of the physician to take his part in public affairs, at least in regard to questions involving sanitary welfare, but there has never been any occasion, and we trust there never will be anywhere else than in Russia.

calling for such demands on the part of the medical profession as these. An epidemic of cholera is not, at the present time, dreaded as in the past, but in the disorganized condition that exists in many portions of the Russian empire its invasion could not be otherwise than disastrous. It may be that the autocracy will consider that between the cholera and any surrender of its powers the cholera is the alternative of choice, no matter how great its extent and cost of human life. Whatever we may think of some of the methods of the Russian revolutionists, it is satisfactory to know that the members of our profession are willing to risk doing what they consider their duty without regard to consequences.

THE RATE OF ABSORPTION FROM INTRAMUSCULAR TISSUE.

Although various therapeutic agents have been injected intramuscularly at different times, it was rather with the view of minimizing pain and of averting the formation of abscesses than of any expected increase in the rate of absorption. As a matter of fact, it was believed by some that the rate of absorption from the intramuscular tissues was slower than that from the subcutaneous tissues. It has been conclusively demonstrated, however, by Drs. S. J. Meltzer and John Auer[1] that the relation of events is exactly the reverse and that the physiologic effects following intramuscular injection are only less prompt and less pronounced than those following intravenous injection. Observations were made with adrenalin, curare, fluorescein and morphin. The evidence shows that the fluid injected does not enter directly into the circulation, but is at first deposited between the muscular fibers, whence it is carried by some process of rapid absorption into the blood stream. While in general the difference between absorption from the intramuscular and subcutaneous tissues appears to be merely one of degree, there is reason for believing that some substances are better absorbed through the one than the other channel. The results of the investigation under consideration may find immediate practical application, inasmuch as smaller doses are required for intramuscular than for subcutaneous injection, while rapidity and intensity, in conjunction with long duration, of effect may be secured by combining both methods of administration.

BASOPHILIC GRANULATIONS IN RED BLOOD CORPUSCLES.

Granulations tingible with basic stains have been observed in the red blood corpuscles of the circulating blood especially in the presence of anemia, and they have been thought to represent a stage in the transformation of normoblasts into adult red corpuscles. Similar granulations, however, have been found also in the erythrocytes in cases of lead poisoning, and they have been induced experimentally by the administration of phenylhydrazin; and under such circumstances they have been attributed to a degenerative process of toxic origin involving the hemoglobin. The frequent presence of nucleated red corpuscles exhibiting various grades of nuclear degeneration suggests that the granules may represent fragments of disintegrated nuclei and that the morbid process may take place in the hemopoietic organs and not in the general circulation. Finally, basophilic granulations have been demonstrated in blood from normal individuals. In order to determine what relation, if any, exists between nucleated red corpuscles and the granular cells under consideration, Dr. W. B. Cadwalader[1] made a study of the blood from a number of apparently healthy individuals, from 27 cases of lead poisoning and from 10 cases of anemia, of both primary and secondary varieties. He found that basophilic granulations occur normally in small numbers in erythrocytes in the blood of man, but their number is increased under certain abnormal conditions, undergoing decrease as convalescence sets in. Further, he found that nucleated red corpuscles are common in the blood of individuals suffering from lead poisoning and that their presence is always associated with an increase in the number of granular red cells. It was noted that the anemia secondary to lead poisoning is, as a rule, only moderate in degree. The granular cells are most common in cases of lead poisoning. Possibly they have their origin in the blood-forming tissues and they are probably the results of a fragmentation of the nucleus of the red blood corpuscle.

1. Journal of Experimental Medicine, vii, 1, Feb. 25, 1905, p. 59.

THE SIGNIFICANCE OF TRACES OF BLOOD IN TYPHOID STOOLS.

Since Rossel originated the aloin test for the detection of traces of blood in the feces it has been used to a considerable extent in the detection of occult hemorrhage in gastric carcinoma and ulcer. In Naunyn's clinic a routine use of this test has been carried on for some time in connection with the typhoid cases. The result of the test in the first eighteen cases is described by Petracchi.[2] Of eighteen cases tested, eight showed traces of blood at some stage of the disease. In the great majority of cases the positive test was observed during the second and third weeks of the disease, during the period when hemorrhages apparent to the naked eye are likely to appear. In four of these cases large hemorrhages occurred, generally three or four days after the occult hemorrhage was detected. Most of the eight cases were severe, though the autopsies on three of them showed that the intestinal lesions were not unusually extensive. This shows, Petracchi thinks, that the occurrence of intestinal hemorrhage in typhoid is the result of the character of the infection rather than of the extent of the intestinal lesions. In some of the cases in which the presence of occult hemorrhage was detected, the hemorrhage was accompanied by a distinct increase in the rapidity of the pulse. In four cases in which this occurred large hemorrhages resulted in three. Petracchi considers the combination of occult hemorrhage with increased rapidity of pulse rate as a valuable index of a possible severe hemorrhage. It seems reasonable to assume that if by this test we can foresee the probability of intestinal hemorrhages, we will be able more successfully to combat them, and should be able to reduce the mortality from this cause.

1. Bulletin of the Ayer Clinical Laboratory of the Pennsylvania Hospital, No. 2, January, 1905, p. 29.
2. Zeitschrift für klin. Med., vol. lvi, Nos. 1-2.

Medical News

ARKANSAS.

Smallpox.—Malvern reports 7 cases.——Warren has had 18 cases, but no new cases have developed for 17 days.——Little Rock reports 17 cases.

Deaths in 1904.—During the year 823 deaths occurred in Little Rock, of which 43 were from violence. The rate per 1,000 of population was 14.1. There were 50 deaths at the City Hospital.

Medical Department Commencement.—At the annual graduating exercises of the Medical Department Arkansas University, Little Rock, April 12, a class of 28 received diplomas from Dr. Hartzog, president of the university.

Sustains Federal Regulation.—In the case of Dr. S. C. Van Leer et al vs. the federal medical board of Hot Springs—the case in which the status of non-licensed physicians was sought to be established—Judge Trieber held that the act of the Arkansas legislature ceding jurisdiction over the reservation, and the act of congress of April 20, 1894, vesting the right in the secretary of the interior to make rules and regulations for the government of the reservation, are valid and binding. He took under advisement the question as to whether the allegations of the bill sufficiently charge any fraud against the board, in arbitrary actions under the guise of the regulations.

GEORGIA.

Fire in Griffin.—A fire in the business portion of Griffin, March 24, caused a loss to Dr. Joseph M. Thomas of $1,250 on which he had only $350 insurance.

Commencements.—The Atlanta College of Physicians and Surgeons graduated a class of 48, April 3. Dr. Richard Douglas, Nashville, Tenn., delivered the annual address and the diplomas were presented by the president, Hon. Howard Van Epps.——A class of 14 received diplomas from the medical department of the University of Georgia at the commencement exercises held in Augusta, April 1. Dr. De Saussure Ford, dean of the faculty, presided, and Hon. C. P. Pressly delivered the address to the graduating class.

State Association Meeting.—The fifty-sixth annual session of the Medical Association of Georgia will be held at Atlanta, April 19, 20 and 21. The meetings of the association will be held in the ballroom of the Kimball House. The session will open at 9:30 on Wednesday morning. On Wednesday night a supper will be tendered to the members of the association at the Piedmont Hotel. On Thursday night there will be a special meeting of the association to consider the adoption of the new constitution. A program of 66 papers has been prepared. The railroads will give a rate of fare and a third, and the hotels of Atlanta have agreed to make special rates to visiting members.

ILLINOIS.

Smallpox.—Danville is reported to have 25 cases of smallpox.

Nitric Acid Burns.—Dr. Stephen W. Jones, Danville, was seriously burned, April 4, by the breaking of a bottle of nitric acid which he was carrying in his pocket.

State Board Meeting.—The regular quarterly meeting of the State Board of Health was held in Chicago, April 11. Special attention was devoted to the prevalence of cerebrospinal meningitis in the East and its invasion of Illinois. The prevalence of this disease in Illinois will be thoroughly investigated and such preventive measures will be adopted as may be warranted by the results of this investigation. The publication of a new edition of the board's circular on consumption was ordered. The examinations of the board were held at the Great Northern Hotel, April 12, 13 and 14. The next examination will be held in Chicago, May 3.

Prison Tuberculosis.—The State Board of Health made an inspection of the Illinois state penitentiary at Joliet, April 7, to ascertain the sanitary condition of the prison and the effect on the health of the convicts of the enforcement of the anti-convict labor law. It has been alleged that since this law went into force and put the convicts out of employment tuberculosis has increased over 40 per cent. among the prisoners. The investigations were made by the president, secretary, chemist and sanitary engineer of the board, and will be concluded next week, when an exhaustive investigation will be made to determine the character of the air in the cell houses.

Wants Support of Profession.—The State Board of Health desires to request the physicians of the state through the columns of THE JOURNAL to enter their protests to their senators and representatives against the passage of Senate bills 169, 292 and 311 (osteopathic) now on passage in the senate, and Senate bills 237 (optometry) and 271 (antivivisection), now in the house. Also against the passage of House bills 228, 229 and 274 (osteopathic) and 432 (optometry) now in the House of Representatives. The board also wishes to urge the members of the medical profession to support House bill 330 (tuberculosis sanitarium), which is still in the House of Representatives.

Chicago.

Personal.—Dr. James B. Herrick sailed for Europe April 11. He will spend the summer in study in Berlin.

Appropriation for New Building.—The legislature has appropriated $75,000 for a new building for the Illinois Charitable Eye and Ear Infirmary.

Smallpox.—The city council has appropriated an additional sum of $10,000 to be employed in preventing the spread of smallpox.——Three cases were found on April 6 among the patients at the Illinois Charitable Eye and Ear Infirmary.

The Deaths of the Week.—For the week ended April 8 the deaths numbered 512, equivalent to an annual mortality rate of 13.40 per 1,000. Pneumonia still leads death causes with 70; other causes are, consumption, 67; nephritis, 44; heart diseases, 37, and violence, 36.

Deaths of the Quarter.—During the first three months of 1905 there were 7,500 deaths reported, or 186 fewer than the corresponding period of last year. This is equivalent to an annual mortality of 15.34. Pneumonia caused 1,526 deaths; consumption, 873; heart diseases, 511; nephritis, 489; violence, 339, and suicide, 108.

Comparative Mortality of the Quarter.—The comparative statement of mortality of the first three months of this year and of the corresponding period of last year is on the whole favorable to 1905. There were 186 fewer deaths and a decrease of 4.1 per cent. in the general death rate. But the deaths under 5 years of age number 429 more than in 1904, while the deaths among those over 20 are 630 fewer. Among the causes of death showing reduction are apoplexy, 4; cancer, 9; convulsions, 10; heart disease, 65; nervous diseases, 5; pneumonia, 286; scarlet fever, 37; typhoid fever, 29, and violence other than suicide, 11. Among those showing increase are acute intestinal diseases, 30; Bright's disease, 7; bronchitis, 8; consumption, 14; diphtheria, 6; influenza, 55; measles, 61; smallpox, 33; suicide, 4, and whooping cough, 90.

MARYLAND.

Personal.—Dr. John Mace, Cambridge, was operated on at the Cambridge Hospital for appendicitis, April 6.

Societies Meet.—The Frederick County Medical Society held its annual meeting at Brunswick, April 6.——The Howard County Medical Society held its annual meeting April 6 at Ellicott City, when the following officers were elected: President, Dr. Samuel A. Nichols, Dayton; vice-president, Dr. John W. Hebb, Jr., West Friendship; secretary and treasurer, Dr. L. Gillis Owings, Ellicott City, and censor, Dr. Bernard J. Byrne, Ellicott City.

Baltimore.

Pneumonia Leads Consumption.—The Health Department reported 49 deaths from pneumonia and only 31 from consumption for the week ended April 8.

Herter Lecturer.—Prof. Dr. Hans Meyer of the University of Vienna has accepted the invitation to deliver the Herter Lectures at Johns Hopkins University, October 5 and 6. His subject will be, "The Physiological Results of Pharmacological Research."

Correction Corrected.—Our Baltimore correspondent informs us that the bureau of information for visiting physicians is not at the Johns Hopkins University Hospital, as erroneously announced in THE JOURNAL of March 25, nor at the Baltimore University Hospital, as announced, also erroneously, in THE JOURNAL of April 1, but at the University Hospital.

Personal.—Dr. Jane E. Robbins, who has had charge of the Locust Point Social Settlement for some months past, has resigned.——Dr. John Williamson Palmer, the author of "Stonewall Jackson's Way" and other poems, celebrated his eighty-first birthday April 4.——Mr. James Taylor Lewis,

counsel for the New York State Medical Association, spoke on "Medical Quacks" at the semi-annual meeting of the Baltimore City Medical Society, April 5.

Free Treatment for Deformed Children.—Henry A. Wise, assistant superintendent of schools, informs us that by a mistake of his the newspapers announced that "Dr. R. Tunstall Taylor had been granted permission by the school board to treat deformed children free of charge," and that the item should read: "The Hospital for the Relief of Crippled and Deformed Children has been authorized by the school board to treat poor, deformed school children free of charge."

NEW YORK.

Convalescent Home Incorporated.—The Solomon and Betty Loeb Memorial Home for Convalescents has been incorporated. The foundation has been erected by the children of those for whom the home is named. The amount given for this charity is $750,000, of which $500,000 is set aside as a permanent endowment fund. A farm of 70 acres has been purchased at East View, Westchester County, on which a number of detached cottages are to be built.

Osteopathy Bill Amended.—The bill legalizing the practice of osteopathy has been amended on the senate side so as to give the board of regents authority and make the list of subjects for examination include therapeutics, practice and all other subjects which practitioners of other schools are required to know. The same bill met further opposition before the assembly committee on public health. Dr. Abraham Jacobi of New York, and Drs. Root, Shaw and MacDonald were those who spoke in opposition to the bill. As there were many others opposed who were not present because of an error in the date of the hearing, another hearing was promised.

Work of the Legislature.—The governor has signed the bill authorizing the state to give the buildings now used by the House of Refuge, on Randall's Island, to New York City in exchange for lands and buildings in Brooklyn now used for state hospital purposes.——Four bills have been favorably reported bearing on the question of the New York City water supply: Mayor McClellan's bill giving the city the right to go into Ulster County for a supply; Assemblyman Apgar's two bills giving villages and cities in Westchester County the right to tap the Croton mains and providing for a speedier settlement of condemnation proceedings; and the Yale bill, giving Putnam County the same rights as those contained in the Apgar bill, plus the right to use lakes for boating and fishing. ——The bill in regard to the State Water Commission has been reported on by the Assembly Ways and Means Committee and the five bills will be passed at the same time.——The same committee reported an appropriation of $150,000 to establish an insane receiving hospital in New York City to cost $300,000. It is to be used as a detention hospital for those thought to be insane, where they will undergo a course of examination and supervision before being admitted to a regular state hospital for the insane.——A bill has been introduced making it a felony for any one to sell or give away any compound or preparation composed in whole or in part of any unwholesome, deleterious or poisonous substitute for pure and wholesome liquor. The punishment for a violation is to be a fine not exceeding $2,500 or imprisonment for not more than ten years, or both fine and imprisonment.

New York City.

Personal.—Dr. Louis L. Seaman sails from San Francisco on a mission to the far East, April 18.

Buffalo Spitters Beware!—Detectives have been assigned on Buffalo street cars to arrest all violators of the antispitting ordinance.

Membership Full.—The New York Academy of Medicine now has 1,000 members, its limit of membership, and has established a waiting list.

For Cancer Patients.—About $2,000 will be netted for the cancerous poor of New York by the course of lectures on "The Women of the Renaissance," given by Dr. James J. Walsh.

Buffalo Personals.—Dr. Charles Van Bergen sails for Europe April 27.——Dr. Charles Banta has returned from a trip abroad.——Dr. Walter S. Goodale has been appointed special agent of the charity organization society in charge of the tenement house and tuberculosis work.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended April 1, 470 cases of measles, with 21 deaths; 413 cases of tuberculosis, with 172 deaths; 317 cases of diphtheria, with 31 deaths; 224 cases of scarlet fever, with 20 deaths; 189 cases of cerebrospinal meningitis, with 131 deaths; 45 cases of typhoid fever, with 6 deaths; 149 cases of varicella and one case of smallpox.

Tuberculosis Clinic a Success.—A statement has been given out that the clinic of the Department of Health for the treatment of communicable pulmonary diseases has successfully passed the experimental stage and has proved a valuable aid in the campaign against consumption. This clinic was opened March 1, 1904, and since that time 5,100 patients have applied for treatment, making 13,740 visits. Of this number 527 were placed in hospitals and sanatoria. The objects desired to be attained are early recognition of the disease, careful supervision of persons receiving treatment, a supply of milk and proper food to indigent cases, instruction in regard to sputum, etc., and the extension and strengthening of the sanitary control of consumption among the poor by the Health Department.

The Meningitis Epidemic.—The presumption that the epidemic of cerebrospinal meningitis was on the decline seems to have been a mistake, as the high mortality continues. Since the beginning of the year Dr. John S. Billings, chief of the division of communicable diseases of the Health Department, has kept a map on which the deaths from this cause are designated from week to week. So far the map shows 800 cases. Most of the cases have occurred near other cases. That part of the city bounded by Fifth Street, the Brooklyn bridge, Broadway and the East River has been most affected, about 200 cases occurring in this area. The map seemed to show that there were very few cases in the parts of the city populated by well-to-do people, and seems to bear out the theory that cleanliness is the chief preventive of the disease. It would also seem to support those who advocate the fumigation of houses after cases have appeared.

To Isolate Contagious Diseases.—An effort is being made by the Health Department to give the city an adequate and modern equipment for the care of cases of contagious diseases. At present there is no place where a patient with measles can be taken by the Department of Health for isolation. There are accommodations for only 60 cases of diphtheria, while from 8,000 to 10,000 cases are reported annually, 75 per cent. of these being in the tenement districts, where it is impossible properly to isolate them. Several buildings will be opened this year. The execution of the plans of the department will cost $7,000,000. It is intended to rebuild the isolation plant in Brooklyn. The buildings already constructed, those under course of construction, and those to be begun as soon as plans can be prepared, will cost about $500,000. Three new buildings to cost $703,000 will be opened at Willard Parker Hospital, a scarlet fever pavilion accommodating 300 patients, an administration building and a laboratory for the analysis of food products and for making bacteriologic examinations. A new site adjoining the present Willard Parker Hospital site is to be purchased with $250,000 of the appropriation. This is to be used for measles and diphtheria pavilions similar to the scarlet fever pavilion. In explaining the request for funds to provide for an epidemic of measles due next spring a chart was shown which had been kept since 1898, and this shows that every other year measles has been epidemic. In 1898 the maximum number of cases reported in any one month was about 2,600; in 1899, 1,700; in 1900, 4,200; in 1901, 1,500; in 1902, 3,900; in 1903, 1,750; in 1904, 7,100, and in 1905 up to April 1, 1,656.

PENNSYLVANIA.

Personal.—Dr. J. H. Funk, Boyertown, has been elected state pomologist by the State Board of Agriculture.

Hospital Staff Resigns.—The medical staff of St. Joseph's Hospital, Reading, resigned in a body March 28. Efforts have been instituted for the reorganization of a new staff. Dr. Harry D. Stryker has been elected president and Dr. David S. Grimm, secretary.

Osteopathic Bill Fails.—The senate bill regulating the practice of osteopathy and licensing osteopaths in Pennsylvania, the establishment of a board of osteopathic examiners representing the Pennsylvania Osteopathic Association, and providing for the punishment of persons violating the proposed act, failed in the house by a vote of 94 to 37, April 6.

Smallpox Spreading.—The smallpox epidemic at Mount Union shows no signs of abatement and new cases are being

reported daily. The town has been quarantined and no mail is allowed to leave the postoffice. The Pennsylvania System does not allow any of its trains to stop at the place. Other cases of the disease are being reported in the nearby towns, thus showing its tendency to spread. Cases have been reported in Mapleton, Orbisonia, Newton Hamilton, Reedville, Shirley Township and East Waterford, Juniata County.

Consumptive Bill Vetoed.—Governor Pennypacker on April 7 vetoed the bill appropriating $300,000 for the erection of two state institutions for the treatment of incipient tuberculosis. He says that the bill provides for a preliminary step in a movement the results of which are of the most extensive character, and, further, that the provisions for charitable work in this commonwealth have already reached formidable proportions. "At the outset," he continues, "and when making the first step, we ought not to shut our eyes to the fact that if we are to provide for consumptives, we may have in time to care also for those afflicted with dangerous contagious disease."

Meningitis in the State.—Cerebrospinal meningitis is being reported from different quarters of the state. One death was reported from Shenandoah, April 5; another death in Lebanon from the same cause, April 1, and one case was reported in Pittsburg, April 5. Efforts are being made by the authorities to prevent the spread of this disease. Under the act of June 18, 1895, every physician is required to report all such cases at once. The State Board of Health also directs that after the case is reported "they shall immediately place, or cause to be placed, in a conspicuous place or places on the house or premises in which such cases may be located, a placard or placards in which shall be printed in large letters the words: 'Epidemic cerebrospinal meningitis—spotted fever; an infectious, communicable disease.' All persons are cautioned against entering these premises without permission of the Board of Health. Any person tearing down or defacing this placard is liable to a fine of $100, or sixty days' imprisonment. The posting of the placard is not to be considered as establishing quarantine on the inmates of the house, but merely as warning the public of the danger of entering the same. After the recovery, removal or death of a patient suffering from the disease, the placard should remain posted for at least one week, and the same precautions in the way of disinfection should be taken as in the case of other infectious diseases."

Public Health Bills Passed.—The three important health bills introduced into the legislature in January have finally passed the house. The bill creating a Department of Health, although passed last, is the first of this series of bills. It abolishes the present State Board of Health and substitutes a Commissioner of Health, who must be a physician of ten years' practice. He is to be appointed by the governor and is to receive a salary of $10,000. An advisory board of six members is to be appointed, the majority of which must be physicians. The commissioner is empowered to issue subpenas and compel witnesses to testify in any matter to him, and to issue warrants for the arrest of persons who disobey quarantine orders or the regulations of the Department of Health. In the abatement of nuisance which threaten the health of communities the commissioner will have almost unlimited authority. The bill provides that the state be divided into ten districts, each district to be in charge of a physician of five years' practice, who shall receive a salary of $2,500 a year. This bill was passed by a vote of 145 to 24. The Commissioner of Health is given supervision of all the waters of the city used for drinking purposes. Municipalities and private corporations and individuals who supply water for the public are compelled to furnish the Commissioner of Health with a copy of the plans and surveys of their water works, with a description of the sources of supply, and no additional source of supply shall thereafter be used without the consent of the commissioner. Permits to establish water works will also be granted by the commissioner. This pure water bill passed the house by a vote of 125 to 48. The bill establishing a state bureau of vital statistics at Harrisburg, for the immediate registration of deaths and births in the state, was also passed without debate, by a vote of 123 to 25.

Philadelphia.

Personal.—Dr. Thomas C. Potter is seriously ill with angina pectoris at his home in Germantown.——Dr. David L. Edsall has been made assistant professor of medicine in the medical department of the University of Pennsylvania, and Dr. R. Tait McKenzie has been appointed professor of physical education, with a seat in the medical faculty.——Dr. Frank Abbott, resident physician in the Garrettson Hospital, has resigned and Dr. Walter M. Miller has been appointed to the vacancy.

Examination for Internes.—Examination for resident physicians to Mercer Hospital, Trenton, N. J., will be held in the laboratories of the University of Pennsylvania, April 15, at 2:30 p. m.——Examination for candidates for interneships in the Methodist Episcopal Hospital will be held April 17 in the hospital building, at 8 o'clock. Four residents will be appointed.——An examination for six resident physicians for St. Joseph's Hospital will be held in the hospital building, May 1, at 6 p. m.

Dr. Osler to Make Address.—Dr. William Osler will address the medical students of the University of Pennsylvania by invitation and under the auspices of the Stillé Medical Society of the University, in Houston Hall, April 19, at 8 p. m., on the subject of "The Student's Life." This will be the final address to medical students by Dr. Osler prior to his departure from this country, being the last of three addresses to the students of the universities with which he has been connected—McGill University, Johns Hopkins University and the University of Pennsylvania.

Health Report.—The deaths from all causes reported for the week ended April 8 aggregated 503. This is a decrease of 42 from last week, and a decrease of 94 from the corresponding period of last year. The decrease in typhoid fever of the previous week was maintained. The total number of cases reported reached 161, as compared with 231 for the previous week. The malady continues to prevail in the northeastern section of the city, where 60 per cent. of the entire number of new cases existed. The principal causes of death were: Typhoid fever, 23; diphtheria, 15; pulmonary tuberculosis, 52; cancer 27; apoplexy, 23; heart disease, 46; pneumonia, 53; enteritis, 24; Bright's disease, 45, and meningitis, 1. The total number of contagious disease cases reported was 280, with 42 deaths, as compared with 325 cases and 37 deaths for the preceding seven days.

GENERAL.

American Proctologic Society.—The seventh annual meeting will be held at the Hotel Henry, Pittsburg, Pa., May 5-6, 1905. The secretary-treasurer is Dr. A. B. Cooke, Nashville, Tenn., and the chairman of the committee of arrangements is Dr. W. M. Beach, Pittsburg.

The American Gastroenterological Association.—The eighth annual meeting of this association will be held at the Academy of Medicine, New York City, April 24-25. An interesting program is announced. The annual dinner will be on the evening of the 24th. Dr. Charles D. Aaron, Detroit, is the secretary and treasurer.

Meeting of Council on Medical Education.—The conference of the Council on Medical Education of the American Medical Association will be held in Chicago, April 20, 10 a. m., at the Great Northern Hotel. Some of the questions to be considered at this meeting are: What shall be the standard for the recognition of medical colleges, and how shall such standard be determined? Reciprocal registration; preliminary education; curricula; examinations, and the subject of co-operation among licensing boards and the medical profession. All but 14 states have been heard from, so that the conference promises to be productive of much good.

Conference of American Anatomists.—On invitation of the Wistar Institute of Anatomy, ten of the leading anatomists of the United States met in a conference in Philadelphia with the manager of the Wistar Institute in the interests of anatomy in America, on April 11 and 12. The object of the conference was to discuss the possibility, advisability and means of organizing central institutes for the promotion of research in the different subdivisions of anatomy, such as physical anthropology, comparative anatomy, topographical anatomy, embryology, histology and neurology, and also to establish relationship with similar institutes abroad. This conference was brought about through the efforts of Dr. M. J. Greenman, director of the Wistar Institute. He proposes also to extend the usefulness of this institute along the lines for which it was founded. The splendid equipment of the Wistar Institute with its broad plan of foundation, its devotion to advanced work only, with no undergraduate teaching, have led anatomists to suggest possibilities in co-operative research work by utilizing this institution as a sort of anatomical center, where

the committees may meet from time to time, the work be collated and correlated, where research material may be collected together, prepared for investigation and sent about the country to qualified investigators. The Wistar Institute stands unique in its position in the country to undertake and accomplish a national piece of work such as was proposed at this conference. If the plan is carried out it will do for all the great American universities certain important lines of work which no other institution could attempt. The following scientists were to be present: Dr. Lewellys F. Barker, professor of anatomy, University of Chicago; Dr. Edwin G. Conklin, professor of zoology, University of Pennsylvania, Philadelphia; Dr. Henry H. Donaldson, professor of neurology, University of Chicago; Simon H. Gage, professor of embryology, Cornell University, Ithaca, N. Y.; Dr. G. Carl Huber, professor of embryology, University of Michigan, Ann Arbor; Dr. George S. Huntington, professor of anatomy, Columbia University, New York; Dr. Franklin P. Mall, professor of anatomy, Johns Hopkins University, Baltimore; Dr. J. P. McMurrich, professor of anatomy, University of Michigan, Ann Arbor; Dr. Charles S. Minot, professor of embryology, Harvard University, Cambridge, Mass., and Dr. George A. Piersol, professor of anatomy, University of Pennsylvania, Philadelphia. It is expected that many other anatomists will participate in the work as soon as some definite plans of operation have been decided on. To begin the work, however, it was considered best to have only a few take part in the conference so that some conclusions might be quickly reached and some definite action taken. The guests were received by a committee consisting of General Wistar, the donor of the institute; Mr. Charles C. Harrison, president of the board of managers; Mr. Arthur E. Brown, vice-president of the Academy of Natural Sciences; Dr. John H. Musser of the University of Pennsylvania, and Dr. M. J. Greenman, director of the institute. No conference of the kind or for similar purposes has ever been held in the United States, and it is hoped by those interested that this may be the beginning of united efforts in co-operative research work in anatomy in America such as has been carried on so successfully abroad in astronomy for more than thirty years and in neurology and embryology for the past five years. It is unnecessary to comment on the co-operative plan in any line of work; the adoption of uniform methods, of uniform nomenclature, uniform weights and measures, the correlation of work as it progresses and its subdivision into specialties all tend to greater and better results.

CANADA.

Toronto Clinical Society.—This society met for the first time in the new Ontario Medical Library Building, Toronto, on April 5. The three medical societies of Toronto now meet in these comfortable quarters, the other two being the Toronto Medical Society and the Toronto Pathological Society.

Personal.—Dr. Wiliam Canniff, one of the oldest practitioners in the province, has returned to reside in Toronto after an absence of 10 years. Dr. Canniff was licensed in 1854 for the old province of Upper Canada, and was the first professor of pathology in Canada, being connected with the old medical faculty, now defunct, of Victoria University. He was also Toronto's first medical health officer, a department which he organized for the city in 1883.——Dr. Brefney O'Reilly has returned to Toronto from Baltimore and will commence practice.——Dr. James Stewart, professor of medicine in McGill, and Dr. F. W. Campbell, dean of the medical faculty of Bishop's, Montreal, are recovering from serious illnesses.——Dr. J. D. Lafferty, Calgary, N. W. T., has been spending several weeks in Ottawa, Montreal and Toronto. Dr. Lafferty is spoken of in connection with the governorship of one of the two new provinces about to be created out of the Northwest Territories. ——Dr. R. S. Thornton, Deloraine, Man., has decided to enter political life, having accepted the nomination for his county in connection with the local legislature of Manitoba.

FOREIGN.

Smallpox in Bombay.—Smallpox is almost epidemic in Bombay. According to the *Public Health Reports*, the great danger lies in the fact that the natives do not fear the disease and expose not only themselves but others unconcernedly.

International Antituberculosis Society.—The general assembly of this society was held at Paris, March 14, when Dr. S. Bernheim presented an address on the present status of the crusade against tuberculosis. The officers of the society are at present Professor Lancereaux, president, with Huchard and Richelot of Paris, von Schrötter of Vienna, Hermann Weber of London and de Lancaster of Lisbon, vice-presidents, and Dr. G. Petit of Paris and Count Ivan Tolnewski of London, general secretaries.

Epidemic of Cerebrospinal Meningitis in Germany.—The epidemic of this disease in upper Silesia has included 1,200 cases in the Oppeln district, with a mortality of 50 per cent. The schools have been closed in the infected district and the houses disinfected. Circulars instructing the people how to ward off the disease and to prevent its spread have been distributed, and the cable brings word this week that the epidemic has begun to subside. Families that had sheltered vagabonds from Russia were the first affected.

Second German Preventive Congress.—The first congress of the German Society for Repression of Venereal Diseases was held at Frankfurt two years ago, and the second convened at Munich, March 17 and 18, 1905. The society now has 4,000 members and 21 local sub-societies, and the congress had a crowded attendance. Lesser and Blaschko of Berlin presided. The audiences included the general public, with a very large official and legal attendance. From the reports published in our exchanges we note that the congress unanimously voted that the obligation of professional secrecy should be binding on the officials and employes of the hospitals, insurance and similar societies the same as on physicians. Neisser is president of the society, and although he is now studying syphilis in Java, a communication was read from him. It urged that the regulations now in vogue for contagious diseases in general should be extended to include syphilis whenever the attending physician thinks there is danger to the public health in a special case. A prominent legal authority declared that professional secrecy should be maintained, but that the physician will find legal precedent for emancipating himself from the strict letter of the law when exceptional circumstances demand that he should speak. The law permits it if the patient consents. Others insisted that the physician's declaration was liable to do more harm, between husband and wife, for instance, than the disease itself. The discussions on the question of prostitution were animated, as eminent authorities hold opposite views on the question of housing and compulsory medical inspection.

BERLIN LETTER.

Berlin Views on the Cancer Question.

German medical men—at least those of Berlin—have been enjoying a violent stirring up of the seething cancer question. Each weekly meeting of the Berliner Medicinische Gesellschaft for three weeks was recently given up to a free discussion of the matter by the leading authorities, and the crowds attending the meetings gave evidence of the intense interest that the German practitioner takes in the progress of research. The hall of the society is large, seating about 500 persons, but at each meeting it was filled to the doors, about which a crowd surged as at the entrance to an American football game or horse show. Advocates of the parasitic theory, and the much more numerous skeptics, each presented his respective claims in full, and although, of course, no conclusions could be finally reached, yet the sentiments of German scientists, both laboratory and clinical, were fully shown.

The leader of the positive side of the discussion was the aged von Leyden, whose appearance before the society aroused great interest. He seemed inclined to admit that it was still impossible to bring forward conclusive proofs of what was to him a conviction, namely, the parasitic etiology of cancer. Clinical considerations afforded him many reasons for taking this view, in that the general features of the disease were those of an infectious malady—the attack of a previous healthy individual followed by progressive emaciation and exhaustion. All the facts that speak for a traumatic etiology speak equally for infection, since trauma always opens the way for infection; so, too, cancer occurs chiefly in places exposed to infection while in the deep-seated tissues, such as the liver and the kidney, it is relatively infrequent. Numerous reports of epidemics of cancer both in men and in animals, cancer *à deux*, successful inoculation of cancer from animal to animal, development of new growths along the track of the trocar used in aspirating cancerous fluid, all seem to him to indicate a true infection of a host by a parasite. Lastly we have the peculiar bodies that can be found in tumor cells and which seem to him incapable of being readily explained away as merely cell inclusions or as products of cell degeneration.

Orth gave a remarkably clear and forceful presentation of the other side of the question. Americans have recently had an opportunity of learning his views during his visit to the St. Louis Exposition, and of reading some of his conclusions (*Annals of Surgery*, 1904, xi, 773). His chief arguments were, first, that so far no satisfactory proof has been brought forward that cancers are of parasitic origin; and secondly, that there is no necessity for assuming a parasitic origin since every feature of their growth can be explained without such assumption, whereas many features of tumors are difficult if not impossible of explanation on the ground of the parasitic theory. The essential feature of all cancers seems to be the cancer cell, without which no secondary growths arise—every metastatic growth begins in such transported cancer cells and consists solely of the descendants of these cells, not of cells derived from the affected organ. Herein lies the fundamental difference between cancer and such diseases as tuberculosis and syphilis, with which cancer is often compared in urging an infectious theory—in all the infectious granulomas the secondary growth consists of products of multiplication of the infected organ itself, and not of tissue cells brought from the primary site. Hence an analogy between infectious granulomas and cancer can not be accepted as supporting the parasitic theory. Likewise the successful transplantation of cancer from animal to animal is no evidence of infectious origin, since in each case cancer cells are transplanted and it is through multiplication of these transplanted cells that the new growth arises—a transplanted cancer is the same as any other metastasis, and no proof of infectiousness. If there is any parasite of cancer, Orth believes that it is the cancer cell itself and not a foreign organism. What have so far been described as parasites in cancer cells are as yet far removed from being a sufficient ground for scientific theories, and in his opinion "the parasitic theory of carcinoma is still completely in the air."

Von Hansemann also took the ground that inoculation experiments were of little positive value so long as they were not made with substances free from cancer cells. The so-called cancer parasites that he has seen demonstrated have never been at all convincing. The idea of hereditary influence is based on altogether untrustworthy evidence, and the so-called epidemics of cancer are so rare as to readily fall under the laws of chance. He also spoke of the danger that a premature belief by the public in an infectious origin for cancer might result in unnecessary hardships for the victims of the disease, as has so often happened with consumptives. His special point was the fallacy of speaking of a single cancer etiology, for he believes it probable that there may be many causes for cancer active in different cases; for example, it is quite probable that the etiology is different in an acute round-cell sarcoma following a blow on the testicle, in a malignant teratoma of the ovary, and in a slow-growing epithelioma of the skin in the aged. In the discussion, which occupied an entire evening, various minor points were added, but nothing of essential importance. From the trend of the discussion, and the comments and attitude of the audience, it seemed that the general sentiment was not far different from that expressed by Orth, namely, that while as yet the parasitic origin of cancer can not be dismissed as unworthy of careful consideration, yet so far it rests on slight and generally unsatisfactory evidence, and on the other hand it is quite unnecessary to assume the presence of parasites to explain all the known features of cancers.

LONDON LETTER.

The Crusade Against Consumption.

The sixth general meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis was held under the presidency of the earl of Derby. According to the report, the expenses have considerably exceeded the income for the year. The next International Tuberculosis Congress will be held at Paris in October, and the aid of the association has been sought by the authorities of the congress. Activity has been displayed throughout the country in the foundation of sanatoria for the treatment of consumption. Tuberculosis in children, especially the surgical forms, has engaged the attention of the association. This country lags behind some others in provision for such children; there is practically only one sanatorium where they can be received. Some of the speakers insisted on the fact that sanatorium treatment could not be expected to be beneficial if cases were not sent in the early stage. Sir William Broadbent moved that in the interest of the public health tuberculosis should be dealt with in a comprehensive manner and that this would be done most efficiently by the Metropolitan Asylums Board constituting itself the sanatorium authority for consumption in London. At present this board is the authority which controls all the fever hospitals of the metropolis. Sir William said that there is an enormous amount of tuberculosis disease in London, mainly in the lower classes. This is a source of danger to others. In poor law infirmaries the hopeless cases ought to be absolutely segregated. If the Metropolitan Asylums Board would undertake to deal with consumption which, to a certain degree, is a contagious disease, they would make a distinct impression on the amount which exists in London.

The Polyclinic.

At the annual meeting of the Medical Graduates' College and Polyclinic a very gratifying report was presented. The register now stands as follows: Life members, 48; members, 136; subscribers, 675; temporary subscribers, 12. Twelve hundred and twenty-five cases of disease, many of them of extreme rarity and interest, were shown at the clinics. During the year the attendances of physicians at the clinics amounted to 13,471. Four sessions of practical classes, each of six weeks' duration and a vacation course of three weeks in September, were held, and were attended by 192 physicians. Three hundred and forty-seven clinical investigations were carried out in the laboratory. This department of the college is receiving steadily increasing support, and it is hoped that soon the fees from this source will form a valued addition to the income. Many welcome additions have been made during the year to the Hutchinson Museum, and the whole collection has been classified and arranged so as to permit of speedy and easy reference. The decision of the council to abolish the special fee of one guinea charged for attendance at the composite course of lectures on medicine and surgery and the allied sciences has been much appreciated by the subscribers, many of whom have increased their annual subscription as a token of their satisfaction. Four lectures are delivered weekly by the most eminent teachers, not only of London, but of the whole kingdom. A special feature of the year's work was a course of six practical demonstrations on clinical methods of estimating the blood pressure, which was given by Dr. George Oliver. The financial position of the college had been for some time very difficult, but is now much more satisfactory. For the first time the year has closed with a credit balance.

Municipal Milk Depots: The Abolition of Sterilization of Milk.

The movement for the supply of milk by municipal authorities is increasing. Its *raison d'etre* is the impossibility of the poorer classes obtaining good and "clean" milk through the ordinary commercial sources. A conference on municipal milk depots and milk sterilization has been held at the Royal Sanitary Institute. The first municipal milk depot was opened at St. Helen's in 1899, and since then depots have been opened at Liverpool, Ashton-under-Lyne, Dukinfield, Battersea, Leith, Bradford, Dundee, Glasgow and Burnley.

The Increase of Lunacy in Scotland.

From time to time we have called attention in THE JOURNAL to the alarming increase of lunacy in the United Kingdom and have given figures dealing with England and Ireland. In a paper on the subject read at the Glasgow Eastern Medical Society Dr. W. A. Parker has dealt specially with Scotland. In the United Kingdom 1.86 insane persons per 1,000 of population were registered insane in 1862; the figure was 3.58 in 1902. In Scotland 5,824 lunatics were registered in 1848; in 1904 the number was 16,894. Thus the number of lunatics increased by 180 per cent. while the population increased by only 52 per cent. There is one hopeful fact, however, which suggests that the increase may have reached its limit; in 1892 the insane numbered 250 per 100,000 of the population; in 1904 the number was a little less—245. This is the first time that any check has occurred in the increase. Several explanations of the increase of lunacy have been given 1. In 1857, when district asylums were first instituted by parliament (owing to dissatisfaction with the treatment of lunatics in workhouses), a great impulse was given to the better care of the insane. This led to the gathering into asylums of many weak-minded persons who had been cared for in their own homes and were then for the first time registered as insane. Thus the increase so produced is only a registered one and does not represent a real increase. 2. There is a steady tendency of the rural population to drift toward the larger towns and many

weaklings and senile patients who would be cared for by their friends in quiet country places are sent to asylums. This again does not represent a real increase. A true increase is represented by the increase of general paralytics in the asylums. 3. The death rate of the inmates of asylums, in consequence of hygienic improvements, has diminished, which results in a greater number of registered lunatics.

Correspondence

A Just Protest.

FALL RIVER, MASS., March 31, 1905.

To the Editor:—On advertising page 35 of THE JOURNAL, Jan. 28, 1905, is an advertisement of W. C. Abbott, M.D., of Chicago, entitled "Doctor, Do Your Pneumonia Cases Die? Mine Do Not. I Have Paid for This Space and I Want You to Read What I Have to Say." I have just received this week a brochure entitled "Pneumonia, a Modernized Successful Treatment," by W. C. Abbott, M.D., Chicago, 1905, starred "From the Journal of the American Medical Association." Anyone not having seen the article in THE JOURNAL would be led to suppose that this article was one of the regular contributed articles of THE JOURNAL of the American Medical Association, instead of being strictly advertising matter.

With the correctness or not of Dr. Abbott's views I am not at present concerned. I wish, however, as a member of the American Medical Association, to protest, and I wish THE JOURNAL to protest against anybody, especially a man of the prominence of W. C. Abbott, sending forth as advertising matter an article purporting to be original matter from THE JOURNAL of the American Medical Association. It is true that it did come from THE JOURNAL of the American Medical Association, but it is one of those truths that is at the same time a lie, or a lie that is at the same time a truth.

I would request that you call attention to this in THE JOURNAL. GEO. L. RICHARDS.

[Dr. Abbott's attention was called to this matter, and he has readily agreed to destroy the reprints in hand.—ED.]

American Anti-Tuberculosis League.

ATLANTA, GA., April 9, 1905.

To the Editor:—Our southern papers, especially those of Atlanta, are filled with announcements of the coming meeting of the "Anti-Tuberculosis League" which convenes in this city on the 17th, 18th and 19th of this month. The city council has voted $500.00 for their entertainment, and it is announced that there will be representatives from all the foreign countries, besides representatives from every state in the Union appointed by the governors. Since very few of the profession know the standing and status of this "Anti-Tuberculosis League" and since such an international convention will assemble so soon in this portion of the South, it has seemed strange that THE JOURNAL, representative of the medical profession of the United States, has not made some mention of this meeting and the profession thus made cognizant of such an important international event. Dr. Geo. Brown of this city is the president, and the papers announce that the attendance will be over one thousand. Will you kindly let your readers know something positive about this league?

DUNBAR ROY, M.D.

An Appeal.

BALTIMORE, April 6, 1905.

To the Editor:—Would it in any way be contrary to the policy of THE JOURNAL to insert the following statement? One of the best known physicians of this country, a woman who has given her life to the arduous duties of the profession, as well as to work in numerous charitable associations, especially in those which are helpful to women, has suddenly been thrown out of a life of great activity and usefulness into one of absolute inactivity and dependence. The medical profession of Chicago, and I think of the country at large, will know well to whom I refer without my mentioning her name. It is my desire to raise a fund for her relief for the remainder of her days, and to this end I solicit subscriptions (to be sent to me personally), which will be applied for her relief. It is a pleasure to head the list with $100.00.

HOWARD A. KELLY.

Typhoid Fever.

BAILEYVILLE, ILL., April 8, 1905.

To the Editor:—The article on typhoid fever by Dr. Robin of Wilmington, Del., in THE JOURNAL April 8, 1905, leads me to quote from "Report on the Origin and Spread of Typhoid Fever in U. S. Military Camps During Spanish War of 1898." The letter of transmittal states that data "furnish most positive proof that the dissemination of typhoid fever in the military camps in 1898 was largely from person to person by contact and not through infected food or water." The study of the conditions prevalent at Jacksonville convinced the board that there, at least, water was not responsible for the epidemic; then the inspection of the recently abandoned camps at Chickamauga plainly told the truth, and the fact that the most potent factor in the spread of typhoid fever in the camps was the pollution of the soil, of the feet, clothing, bedding, tentage, etc., was made evident, and the necessity for disinfection was pointed out in a way that could not be misunderstood.

EDWIN A. CARPENTER.

Marriages

B. MORGAN PARKER, M.D., to Miss Edna Merrell, both of Detroit, Mich., April 12.

RUDOLPH F. HARRIMAN, M.D., to Miss Gretchen W. Fischer, both of Brooklyn, N. Y., April 5.

LAWRENCE P. CRAWFORD, M.D., Earlville, Ill., to Miss Ruth Dixon of Fairview, Ill., March 22.

GURDON POTTER, M.D., Trenton, N. J., to REGINA FLOOD KEYES, M.D., of Buffalo, N. Y., March 18.

HOMER H. WHEELER, M.D., Indianapolis, Ind., to Miss Alice Garver Gladden of Memphis, Tenn., April 5.

WILLIAM ENGELBACH, M.D., Arenzville, Ill., to Miss Fama L. Reynolds of Barry, Ill., at Quincy, Ill., March 27.

GEORGE MILLER MACKEE, M.D., New York City, to Miss Anna Laura Beegle of Far Rockaway, N. Y., March 22.

Deaths

Albert Kimberly Hadel, M.D. University of Maryland School of Medicine, Baltimore, 1889, a member of the American Medical Association, the Medical and Chirurgical Faculty of Maryland; registrar, historian and president of the Maryland Society Sons of the American Revolution; registrar general of the national body Sons of the American Revolution; president of the Maryland Society of the War of 1812; a well-known speaker and writer on historical subjects; a specialist on diseases of the nose and throat, died at his home in Baltimore, April 4, from cerebral hemorrhage, after an illness of four months, aged 54. He served at one time as secretary of the Baltimore Board of Health. Among the pallbearers at his funeral were Drs. Nicholas M. Dashiell, James D. Iglehart, Alexander D. McConachie, Charles E. Sadtler and Eugene F. Cordell.

Samuel Davies Drewry, M.D. Medical College of Virginia, Richmond, 1854, assistant surgeon in the Confederate Navy during the Civil War, died at his home in Centralia, Chesterfield County, Va., April 2, from nephritis, after an illness of several months, aged 72.

Peter Nelson Jacobus, M.D. University of Vermont Medical Department, Burlington, 1885, a member of the Medical Society of the State of New Jersey, died at his home in Washington, N. J., March 28, after a short illness, from debility following influenza, aged 71.

William S. Walker, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1877, surgeon of the St. Louis, Iron Mountain

& Southern Railway at Hot Springs, Ark., died at St. Mary's Hospital, Rochester, Minn., March 31, a short time after a surgical operation.

John D. Paige, M.D. Harvard University Medical School, Boston, 1888, of Savannah, Ga., a member of the Medical Association of Georgia, and a specialist in diseases of the eye, ear, nose and throat, died in Salt Lake City, Utah, March 28, aged about 45.

George W. Purnell, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1858, surgeon in the Confederate service during the Civil War, died suddenly at his home in Hazlehurst, Miss., April 4, from heart disease, aged 68.

Randolph N. Seaver, M.D. University of Wooster Medical Department, Cleveland, 1874, some-time mayor of Corry, Pa., died at his home in that city, April 3, from cerebral hemorrhage, after an illness of only a few hours, aged about 60.

Evan E. Hughes, M.D. Medical College of Ohio, Cincinnati, 1872, a member of the American Medical Association, died at his home in Oak Hill, Ohio, March 28, from cerebral hemorrhage, after an illness of only a few hours, aged 59.

William M. Linquist, M.D. San Francisco, 1896, for several years surgeon on the Pacific Mail Steamship Company's boats between San Francisco and Panama, died at his home in Ukiah, Cal., March 23, from pneumonia, aged 34.

Edwin Tomlinson, M.D. Jefferson Medical College, Philadelphia, 1872, some-time coroner of Camden County, N. J., and postmaster of Gloucester City, died at his home in that city, March 29, after a lingering illness, aged 65.

Rachel Brooks Gleason, M.D. New York Medical College, New York City, 1851, for many years in charge of the Elmira Water Cure, died at the home of her daughter in Buffalo, N. Y., March 13, aged 84.

Fletcher S. Dillman, M.D. Missouri Medical College, St. Louis, 1898, who was thrown from a buggy March 26, died at his home in Ingraham, Ill., April 4. He did not regain consciousness after the injury.

Samuel Tyler Miller, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1850, formerly judge of Gloucester County, N. J., died at his home in Paulsboro, N. J., April 3, aged 78.

Rufus P. Grindle, M.D. New York University, New York City, 1872, who served in both houses of the state legislature, died at his home in Bluehill, Hancock County, Maine, March 28, aged 59.

John Wesley Martin, M.D. University of Louisville (Ky.) Medical Department, 1879, died at his home in West Plains, Mo., March 26, from cancer, after an illness of several months, aged 52.

John W. Hamilton, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1887, died at his home in Lampasas, Texas, March 29, after an illness of one month, aged 45.

Dennis F. Smith, M.D. Jefferson Medical College, Philadelphia, 1881, of Plymouth, Pa., died in the Hospital for the Insane at Retreat, Pa., March 25, after an illness of two years, aged 54.

Theodoric F. C. Dodd, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1857, died at his home in Altoona, Pa., March 8, aged about 70.

Silas B. Kash, M.D. Hospital College of Medicine, Louisville, 1898, died at his home in Burdette, Mo., March 26, from pneumonia, after an illness of ten days, aged 33.

Justus Sutliffe, M.D. New York University, New York City, 1885, died at his home in Nanticoke, Pa., April 3, from pneumonia, after an illness of a week, aged 57.

William L. Coleman, M.D. Medical College of Georgia, Augusta, 1857, an expert on yellow fever, died at his home in Houston, Texas, Nov. 27, 1904, aged 77.

Louis Gotthelf, M.D. University of Berlin, Germany, 1846, founder of St. Mary's, S. D., died at his home in Parker, S. D., April 2, from senile debility, aged 85.

Malcolm R. Clark, M.D. Medical Department of the University of the South, Sewanee, Tenn., 1894, died at his home in Pontotue, Miss., February 16.

Granville A. Newlon, M.D. Examination, W. Va., 1861, died at his home in Buckhannon, W. Va., April 1, from pneumonia, after a short illness, aged 68.

W. A. Houck, M.D. Examination, Ark., of Rhea, Ark., a Confederate veteran, died at Prairie Grove, Ark., March 14, from nephritis, aged 60.

Winfield Scott Scurlock, M.D. Medical College of Ohio, Cincinnati, 1883, died suddenly at his home in New Holland, Ohio, March 31.

John S. Chapel, M.D. University of Buffalo (N. Y.) Medical Department, 1865, died at his home in South New Lyme, Ohio, March 27.

Fred Sauerbrie, M.D. Albany (N.Y.) Medical College, 1895, died suddenly at his home in Clarksville, N. Y., April 2, aged 38.

Henry F. Wildasin, M.D. Cincinnati, 1872, died at his home in Plattsburg, Ohio, March 28, from septicemia, aged 67.

Henry W. Haldeman, M.D. Chicago Medical College, 1879, died recently at his home in Girard, Kan.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

NURSING FROM AN INFECTED BREAST.

————, WASH., April 4, 1905.

To the Editor:—Is acute mastitis a contraindication for nursing? I was called to see a patient who complained of chilliness, loss of appetite and headache; her temperature was 102; pulse, 95. Her right breast was painful, swollen a little, but not red or edematous. Pressure was painful; nursing did not pain her. I applied a hot clay mixture poultice. The next day the breast was better, temperature normal, patient feeling better, and everything appeared favorable. Suppuration did not take place. The baby had been allowed to nurse during this time. The baby had been troubled with constipation some, though I never prescribed for the baby. Next day after mother was better; the baby had what the father called a bad attack of colic. They called a physician from another town, and the next morning the child was dead. The father said the abdomen swelled up considerably, though he did not think the baby very serious. The baby was about two weeks old. The physician from the other town claimed that it was the milk from the breast that I had been treating that killed the baby. Is that probable? Tillman says to let the baby nurse. Holt does not give it among his contraindications. Was my treatment correct? Or should I have been condemned, as I was by the physician that treated the case, for allowing the baby to nurse? B.

ANSWER.—There is no reason for holding that the milk from the infected breast killed the baby. Without a postmortem examination or a more detailed history it is impossible to state the cause of death. There may have been an intussusception of the bowels. A slight mastitis, such as described here, is probably of lymphatic origin, the lactiferous ducts do not become involved, and there are no pus cells in the secretion. It is, as a rule, better to put the breast at complete rest by applying a good supporting bandage and stopping nursing. The stimulation or irritation of the breast by nursing tends to prevent rapid control of the inflammation, and so nursing is contraindicated because of the mother, not on account of the child. In two or three days, or as soon as all tenderness has disappeared, nursing may be resumed. In the other form of mastitis, where there is inflammation of the lactiferous duct, which is characterized by a slower onset and by the presence of pus in the milk, there is more theoretical objection to nursing, but practically the same rule—let the child nurse as soon as fever subsides and local tenderness disappears—leads to no bad results.

INSECT POWDER AT PANAMA.

BEREA, IOWA, April 7, 1905.

To the Editor:—In THE JOURNAL, April 1, p. 1055, I notice that large quantities of "insect powder" is being used on the Isthmus. Can you tell me what its composition is and where it can be obtained and its probable cost per pound?

FRANKLIN T. DE WITT.

ANSWER.—This "insect powder" is probably pyrethrum—Persian or Dalmatian insect powder. This is much used by the United States Public Health and Marine-Hospital Service (see THE JOURNAL, July 9, 1904, p. 117). The Persian powder consists of the flowers of *Chrysanthemum roseum* and other allied plants growing on the Caucasian Mountains and in northern Persia. These are now being raised in large quantities in this country. The powder is obtainable at any drug store for from 15 to 25 cents per pound, and in large quantities for much less.

State Boards of Registration

COMING EXAMINATIONS.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Board of Medical Examiners for the State of Texas, Austin, May 2. Secretary, M. M. Smith, M.D., Austin.

Indiana State Board of Medical Registration, State House, Indianapolis, May 2-4. Secretary, W. T. Gott, M.D., Crawfordsville.

Louisiana State Board of Medical Examiners, New Orleans, May 4-5. Secretary, Felix A. Larue, M.D., New Orleans.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Board of Medical Examiners of the State of North Carolina, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

Massachusetts Board of Registration in Medicine, State House, Boston, May 9-10. Secretary, Edwin B. Harvey, M.D., Room 159, State House, Boston.

New Colorado Medical Act.

The new Colorado Board of Medical Examiners, recently provided for, consists of nine members, appointed by the governor, to hold office for six years. When an applicant for a license offers to the board satisfactory proof that he has complied with the educational requirements specified he is entitled to a license without examination; provided, that graduates in medicine, after Jan. 1, 1900, must have attended not less than four full courses of instruction in four separate years in a reputable medical school. Each applicant is required to name his system of practice, and no person is allowed to use the name of any system unless he holds a certificate from the state association of such system. Candidates whose credentials are not approved are subjected to an examination in anatomy, physiology, chemistry, symptomatology, toxicology, pathology, surgery and obstetrics (exclusive of materia medica and therapeutics). The credentials of applicants relating to their general reputation, their preliminary education and the courses of study they have pursued, the degrees they have received, their experience in general hospitals, medical department of the Army, Navy and Public Health and Marine-Hospital Service, licenses granted by other states and countries, and their experience as teachers of medicine, are given due consideration by the board in conducting its examination. The board is given power to revoke a license obtained by the employment of fraud or deception, either in passing the examination, the assumption of a false name for the personification of another practitioner of a like or different name; for the conviction of a crime involving moral turpitude; habitual intemperance to such an extent as to incapacitate for performance of professional duties; the procuring or aiding or abetting in procuring a criminal abortion; misrepresentations to the public and circulation of vicious or obscene advertisements. The board meets in Denver on the first Tuesday of January, April, July and October of each year.

Maine March Report.—Dr. William J. Maybury, secretary of the Board of Registration of Medicine of Maine, reports the oral and written examination held at Portland, March 28, 1905. The number of subjects examined in was 10; number of questions asked, 100; percentage required to pass, 75. The total number of applicants examined was 11, of whom 10 passed and 1 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Medical School of Maine	(1904)	88.6
College of P. & S., Boston	(1903) 84.5; (1904)	83.4
College of P. & S., Baltimore	(1904)	90.5
College of P. & S., New York City	(1901)	96.8
Laval University, Montreal	(1903) 84.6; (1904)	88.3
University of Pennsylvania	(1899)	94.7
Faculty of Medicine, Paris	(1903)	90.3
Bishop's College Medical Faculty	(1897)	92.9
FAILED.		
Baltimore University School of Medicine	(1904)*	

* Withdrew from examination.

Oklahoma March Report.—Dr. J. W. Baker, secretary-superintendent of the Territorial Board of Health of Oklahoma, reports the examination held March 29, 1905. The number of subjects examined in was 9; number of questions asked, 90, and percentage required to pass, 66.6. Twenty-one persons were examined, of whom 9 passed and 12 failed. The following questions were asked:

SURGERY.

What is inflammation? Name the varieties of inflammation encountered in our general practice. What is suppuration, a phlegmonous and a tuberculous abscess? Give the effects and treatment of primary, recurrent and secondary hemorrhage. Give symptoms and treatment of concussion and compression of the brain, and state what you would do to tap the lateral ventricle. What would induce you to do a colotomy, and where would you make your opening—right or left inguinal or lumbar region? Describe a compound dislocation and compound fracture and state what joint is most frequently affected with above dislocation. Give signs of a fracture, dislocation and reduction. What is a Colles and what a Potts fracture? Give a general treatment for fractures; also give treatment for ununited fracture. When does excision or resection become necessary, and why do you choose excision in place of amputation? Write a short article on asepsis and antisepsis.

ANATOMY.

Name and give the number of bones in the upper and lower extremities. Give the composition of bone and name the unclassified bones. Give number and varieties of motion in joints and structures entering into the formation of joints. Name the muscles in the male and female perineum. Why do they differ? What branches of arteries form the circle of Willis? What veins carry arterial blood and what veins have no valves? From what plexus of nerves is the spermatic plexus formed and what is this plexus called in the female? Give the structure and uses of the pharynx and esophagus. Name and give the number of apertures in the walls of the abdomen. Give the structure and uses of the liver and pancreas.

PHYSIOLOGY.

Give the physiologic properties of protoplasm. Give the physical and physiologic properties of connective tissue. What is intestinal digestion? How is absorption of food accomplished? How are the changes in the air effected by respiration? Name and describe the principal excrementitious fluids of the body. What are and where will you find the appendages of the skin? Give the physiologic cause of sleep. How long does it require the blood to make a complete circuit of the vascular system? Give the vital capacity of the lungs and give the functions of the iris.

CHEMISTRY AND URINALYSIS.

What is matter? In how many forms does it exist? Classify elements and name five most abundant in nature. Distinguish an organic acid; an inorganic acid. Give five examples of each. Give chemical antidote for carbolic acid, arsenic, corrosive sublimate. What results from triturating sulphur and potassium chlorate? From adding potassium permanganate to sulphuric acid? Give chemical formulæ of hydrochloric acid, magnesium sulphate, calomel, water, corrosive sublimate. Give chemical name of Epsom salts, cream of tartar, rochelle salts, lime salt. Describe normal urine and name four of its constituents. Give in detail the heat test for albumin, nitric-acid test. Give in detail a reliable test for sugar in the urine.

MATERIA MEDICA AND THERAPEUTICS.

Define materia medica, therapeutics, menstruum, collyrium, excipient. Define alkaloid, resin, tincture, fluid extract. Define ointment, liniment, plaster, cerate. Give source, physiologic action and therapy of glycerin. Give therapeutic uses of four mineral acids. What anesthetic do you use and why do you prefer it? Give indications for four remedies used in each of the following diseases: Malaria, la grippe, bronchitis. Give source, physiologic action, officinal preparations, therapy and dose of each of the following: Aconite, strychnin, cinchona flava.

OBSTETRICS AND GYNECOLOGY.

Define menstruation, ovulation, conception. Give frequency of menstruation, period of quickening, duration of pregnancy. Give visible signs of pregnancy. Give causes and treatment of antepartum hemorrhage and postpartum hemorrhage. Describe in detail the repair of a laceration of the perineum involving the floor of the vagina. Describe the application and use of the obstetric forceps. Under what conditions would you be justified in inducing premature labor? What anesthetic would you use in labor? Name some of the uses and abuses of irrigation during pregnancy and after labor. Give treatment of threatened abortion.

PRACTICE OF MEDICINE.

What are the most frequent complications and sequelæ of scarlatina? Give causes, symptoms and treatment of simple catarrhal jaundice. Give causes and treatment of croupous pneumonia. Define the term glossitis and give symptoms and treatment. What are the causes of acute parenchymatous nephritis? What is the differentiation of pericarditis from pleuritis? Give the treatment of typhoid fever and state briefly the measures to prevent infection. Give symptoms, management and treatment of smallpox. Give in detail the early diagnosis of tuberculosis of the lungs, and briefly, the treatment. Give the treatment of gastric ulcer with hematemesis.

PHYSICAL DIAGNOSIS.

Differentiate compression of the brain from injury and from the phenomena of alcoholism. Give the physical signs of the most usual valvular lesion of the heart. Give causes and symptoms and prognosis of cardiac dilatation. Give the diagnostic points in variola and in varicella, in regard to (a) the location of the skin lesion (b) the character of the skin lesion, (c) the time that elapses between the onset of the disease and the appearance of the skin lesion. Define and differentiate between illusion, delusion and hallucination. Define vertigo and give causes. Define fever. What is the normal temperature of the human body? Mention the sequelæ of measles and give treatment of them. Give differential diagnosis of measles and scarlet fever. Differentiate between typhoid and malarial fevers.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

Is a physician obliged to attend a patient who sends for him? What signs justify a physician in swearing that a woman is pregnant? What is the poisonous principle in rough on rats, in paris green, in verdigris, in oil of almonds? Of what does med-

ical jurisprudence treat? State the difference between criminal and civil malpractice. Give the symptoms of poisoning by arsenic and the treatment for same. What organs are diseased by alcoholism or poisoning by alcohol? Make an autopsy for the purpose of examination for strychnin poisoning. At what stage of intrauterine life does the fetus become viable? Differentiate abortion from miscarriage.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending April 8, 1905:

Kulp, John S., asst.-surgeon, relieved from duty in Department of California, and ordered to Philippine Islands for duty, to sail on transport April 30, 1905.

Adair, George W., deputy surgeon general, left St. Paul, Minn., on thirty days' leave of absence.

Frick, E. B., surgeon, to take charge of C. S. O., Department of Dakota, during chief surgeon's absence on leave.

Manly, C. J., asst.-surgeon, relieved from duty at Fort Brady, Mich., and ordered to Fort Yellowstone, Wyo., for duty.

Usher, F. M. C., asst.-surgeon, relieved from duty at Fort Yellowstone, Wyo., and ordered to Fort Brady, Mich., for duty.

Carter, Edward C., surgeon, relieved from further duty in the Philippines Division, and ordered to Washington, D. C., to report in person to the Military Secretary for further orders.

Wells, George M., surgeon, retired from active service.

Mann, L. M., deputy surgeon general, returned to Fort Riley, Kan., from sick leave.

Girard, A. C., brigadier general, appointed as such to rank from April 6.

Maus, L. M., deputy surgeon general, relieved from duty at Fort Riley, Kan., and ordered to San Antonio, Texas, for duty as chief surgeon of that department.

Edie, Guy L., surgeon, ordered to report to Secretary of War for duty as attending surgeon, to accompany him to the Philippine Islands and return to this city.

Birmingham, H. P., surgeon, ordered to make medical and sanitary inspection at Forts Clark and Bliss, Texas, Forts Sill and Reno, Oklahoma Territory, and Fort Logan H. Roots, Arkansas.

Rockhill, E. P., asst.-surgeon, granted thirty days' sick leave of absence with permission to apply for thirty days' extension.

Porter, Elias H., de Krafft, S. Chase, and Kellogg, Preston S., contract surgeons, and Casaday, George H., dental surgeon, sailed from San Francisco, Cal., for the Philippines, on the transport *Thomas*.

Rebert, Michael A., contract surgeon, left Fort Totten, N. Y., on leave of absence for ten days.

Peddicord, Harper, contract surgeon, granted leave of absence for three months.

Hallwood, James B., contract surgeon, returned from World's Fair Grounds, St. Louis, Mo., to his proper station, Fort Leavenworth, Kan.

Adair, George F., contract surgeon, returned to duty at Fort Wadsworth, N. Y., from leave of absence.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the two weeks ending April 8, 1905:

Field, J. G., surgeon, appointed surgeon from March 3, 1905.

Farwell, W. G., medical director, retired from active service in accordance with the provisions of Section 1444, Revised Statutes, April 5, 1905, on which day he will have reached the age of 62 years.

Fitts, H. B., surgeon, detached from the *Buffalo* when placed out of commission and ordered to the *Lawton*.

Guthrie, J. A., surgeon, commissioned surgeon with rank of lieutenant commander from Dec. 15, 1904.

Orvis, R. T., surgeon, commissioned surgeon with rank of lieutenant commander from Jan. 1, 1905.

Clifford, A. B., asst.-surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Navy Yard, New York, N. Y.

Miller, J., Jr., asst.-surgeon, detached from the *Buffalo* when placed out of commission, and ordered to the *Lawton*.

Desses, P. T., asst.-surgeon, detached from the *Kentucky* and ordered to the Naval Hospital, Norfolk, Va., for treatment.

Freemen, G. F., P. A. surgeon, ordered to the Naval Station, Olongapo, P. I.

Cowan, J., pharmacist, retired, ordered to the Naval Recruiting Station, New York, N. Y.

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the seven days ending April 5, 1905:

Godfrey, John, surgeon, granted leave of absence for one month from April 15.

Magruder, G. M., surgeon, relieved from duty at Cincinnati, Ohio, and directed to proceed to San Francisco, assuming command of the service, and relieving P. A. Surgeon W. G. Stimpson.

Young, G. B., P. A. surgeon, detailed to represent the service at the meeting of the Council on Medical Education of the American Medical Association at Chicago, April 20.

Stimpson, W. G., P. A. surgeon, on being relieved at San Francisco, by Surgeon G. M. Magruder, to proceed to Port Townsend, Wash., assuming command of the service, and relieving P. A. Surgeon D. E. Robinson.

Nydegger, J. A., P. A. surgeon, granted leave of absence for one day, March 6.

Parker, H. B., P. A. surgeon, granted leave of absence for six days from April 2, 1905, under Paragraph 191 of the Regulations.

Billings, W. C., P. A. surgeon, granted leave of absence for one day, March 23.

Billings, W. C., P. A. surgeon, granted leave of absence for six days from April 5.

Robinson, D. E., P. A. surgeon, on arrival at Port Townsend, Wash., of P. A. Surgeon W. G. Stimpson, to report to him for duty and assignment to quarters.

Warren, B. S., asst.-surgeon, granted leave of absence for four days from April 3.

Collins, G. L., asst.-surgeon, granted leave of absence for seven days from March 31, 1905, under Paragraph 191 of the Regulations. Granted five days' extension of leave of absence from April 6.

Bailey, C. W., acting asst.-surgeon, granted leave of absence for four days from April 10.

Bean, L. C., acting asst.-surgeon, granted leave of absence for two days.

Brown, B. J., Jr., acting asst.-surgeon, granted leave of absence for two days from April 4.

Keatley, H. W., acting asst.-surgeon, granted leave of absence for four days from March 29, under Paragraph 210 of the Regulations.

McCormack, J. T., acting asst.-surgeon, granted leave of absence for five days from April 4.

Stevenson, J. W., acting asst.-surgeon, to assume temporary charge of the service at Cincinnati, granted leave of absence for thirty days, on account of sickness, from February 27.

Walker, R. T., acting asst.-surgeon, granted leave of absence for twenty days from March 30.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to Surgeon General, Public Health and Marine-Hospital Service, during the period from March 24 to April 8, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, March 18-25, 3 cases.

Florida: Jacksonville, March 18-April 1, 7 cases; West Tampa, March 18-25, 5 cases.

Illinois: Chicago, March 18-April 1, 54 cases, 2 deaths; Danville, March 11-25, 7 cases, 4 deaths; Cairo, March 28, 7 cases.

Kentucky: Covington, March 25-April 1, 1 case.

Louisiana: New Orleans, March 18-25, 16 cases; 4 imported.

Michigan: Detroit, March 18-25, 1 case.

Missouri: St. Louis, March 18-April 1, 75 cases, 4 deaths.

Nebraska: March 18-25, Omaha, 1 case; South Omaha, 1 case.

New York: New York, March 25-April 1, 1 case.

Ohio: Cincinnati, Jan. 6-March 31, 66 cases, 2 deaths; Toledo, March 18-April 1, 7 cases.

Pennsylvania: Altoona, March 25-April 1, 1 case; Steelton, March 18-April 1, 2 cases, 1 death; Philadelphia, March 18-25, 1 case.

South Carolina: Charleston, March 11-25, 6 cases, 1 death; Greenville, 4 cases, 3 deaths.

Tennessee: Memphis, March 18-April 1, 19 cases; Nashville, March 18-25, 5 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Jan. 28-Feb. 11, 2 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, Feb. 11-18, 1 case.

Brazil: Pernambuco, Feb. 1-15, 105 deaths; Rio de Janeiro, Feb. 12-March 12, 65 cases, 19 deaths; Victoria, Feb. 7-18, 19 cases, 1 death.

Canada: Hamilton, March 1-31, 1 case.

Chile: Valparaiso, March 4, epidemic.

China: Shanghai, Feb. 4-March 4, 4 cases foreign, 29 deaths native.

Denmark: Copenhagen, Feb. 25-March 11, 2 cases.

France: Nantes, March 3-17, 38 cases, 8 deaths; Paris, March 4-18, 32 cases, 2 deaths; St. Etienne, Feb. 19-28, present.

Great Britain: Birmingham, March 11-18, 2 cases; Bradford, Feb. 25-March 11, 4 cases; Cardiff, March 4-11, 1 case; Glasgow, March 10-17, 1 case; Hull, March 11-18, 3 cases; Leeds, March 4-25, 30 cases; Leith, March 4-18, 3 cases; London, March 11-18, 9 cases; New Castle-on-Tyne, March 6-18, 5 cases; Nottingham, March 4-18, 2 cases; Sheffield, March 11-18, 2 cases; South Shields, March 6-18, 9 cases, 1 death.

India: Bombay, Feb. 21-March 7, 148 cases, 186 deaths; Calcutta, Feb. 18-March 4, 7 cases, 12 deaths; Karachi, Feb. 19-March 5, 25 cases, 4 deaths; Madras, Feb. 18-March 3, 4 deaths.

Italy: Catania, Feb. 23-March 23, 15 deaths; Lecce Province, Feb. 23-March 9, 9 cases; Palermo, Feb. 11-March 18, 66 cases, 18 deaths.

Japan: Formosa, Feb. 1-28, 1 case; Kobe, Feb. 22, 1 case; Matsuyama, Feb. 15, 1 case; Nishiwagun, Feb. 11, 16 cases.

Mexico: City of Mexico, Feb. 11-March 25, 22 cases, 9 deaths.

Russia: Moscow, Feb. 25-March 11, 12 cases, 4 deaths; Odessa, Feb. 18-March 18, 19 cases, 7 deaths.

Spain: Barcelona, March 1-10, 9 deaths.

Straits Settlements: Singapore, Feb. 4-11, 2 deaths.

Turkey: Constantinople, Feb. 26-March 12, 5 deaths.

West Indies: Grenada, Feb. 23-March 9, 8 cases.

PLAGUE—INSULAR.

Philippine Islands: Manila, Jan. 28-Feb. 18, 7 cases, 6 deaths.

PLAGUE—FOREIGN.

Africa (British): Cape Colony, Feb. 4-25, 2 cases, 1 death; East Africa, Feb. 11, 25 deaths.

Arabia: Aden (corrected), Feb. 11-18, 254 cases, 204 deaths; Aden, Feb. 18-March 10, 568 cases, 510 deaths.

Australia: Brisbane, Jan. 2-18, 14 cases, 3 deaths; Bundaberg, Feb. 3, 1 death; Clarence River District, Jan. 10-Feb. 4, 1 death; New Castle, March 27, present.

Brazil: Rio de Janeiro, Feb. 12-March 12, 8 cases, 7 deaths; Taubete, Feb. 18, 1 death.

Chile, Arica, March 4, present; Iquique, March 4, present; Pisaqua, Feb. 27, 104 cases.

Egypt: Suez, Feb. 8-March 4, 7 cases, 6 deaths; Tukh, Feb. 16-23, 1 case.

India: Bombay, Feb. 21-March 7, 1,729 deaths; Calcutta, Feb. 18-March 14, 343 deaths; Karachi, Feb. 5-March 5, 125 cases.

121 deaths; Madras, Feb. 18-24, 3 deaths; Rangoon, Feb. 6-13, 25 cases, 8 deaths; general, Feb. 18-25, 34,154 cases, 29,465 deaths.
Japan: Formosa, Feb. 1-28, 177 cases, 169 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, Feb. 12-March 12, 54 cases, 18 deaths.
Mexico: Coatzacoalcos, March 18-25, 1 case; Merida, March 18-25, 1 case, 1 death.
Panama: Colon, Jan. 23-March 22, 4 cases, 1 death; Panama, Jan. 1-March 18, 82 cases, 35 deaths.

CHOLERA.

India: Calcutta, Feb. 18-March 4, 54 deaths.
Russia: Baku, Jan. 31-Feb. 10, 1 case; Erivan, Jan. 23-30, 1 case; Ural Territory, Jan. 31-Feb. 10, 1 case.
Turkey in Asia (general): Jan. 21-Feb. 4, 7 cases, 4 deaths; Van, Jan. 21-28, 2 cases, 1 death.

Medical Organization

AN EPITOME OF THE HISTORY OF MEDICAL ORGANIZATION IN THE UNITED STATES.

By J. N. McCormack, M.D.

Chairman of the Committee on Organization of the American Medical Association.

BOWLING GREEN, KY.

As all of the states and territories except three, and including Hawaii and Porto Rico, are now organized on a practically uniform plan, with universal local societies, and coincident membership in them and the state associations as the cardinal feature, this seems an opportune time for the publication of a brief statement of pertinent historical facts and figures in regard to each of the reorganized states and of the national association, for the information and encouragement of all who are engaged or interested in the work, as well as to indicate and emphasize how much remains to be done in each jurisdiction before the profession will be so organized that it may safely and confidently undertake the great reforms demanded alike by its own interests and those of the great common people for whose service and conservation it primarily exists.

In order that the statement might be made authoritative an inquiry was addressed to the secretary of the respective state associations, and only in a few instances have these reports been supplemented by information which these officials were unable to obtain. It is a matter of regret to the writer that the reports from a few states and territories were not received in time to be utilized, but these will be made the basis of a supplementary report.

As will be seen, New Jersey leads in the age of its state organization, it dating from 1766, followed by Massachusetts in 1781, Connecticut in 1792, Maryland in 1798, Rhode Island in 1812, and the other states in an irregular order bearing little relation either to the time of their admission into the Union or the number and influence of their medical population. In this connection it is interesting to note that comparatively few states had even nominal organizations until the agitation began which resulted in the formation of the American Medical Association, and that most of them were contented with these nominal organizations, which, as in my own state, embraced and interested only a small per cent. of the profession, having, in fact, little existence except on paper, until the national movement for real organization began. It is frankly admitted by all that this movement for reorganization from above downwards has its objectionable features, and that, theoretically at least, the reverse plan would have been preferable, but not only are these objections more theoretical than real, but both history and a comprehensive knowledge of professional conditions indicate beyond controversy that it offers the only feasible plan for so organizing the profession of this generation as to enable it to fulfill the purposes of its existence, the choice being between doing it in this way or permitting it to remain unorganized and powerless, as in the past.

It will also be noted that New Jersey, Massachusetts, Alabama, Pennsylvania and Indiana, in the order named, have been long organized on the coincident membership plan, and, having a larger per cent. of the profession already enrolled, received less apparent advantages from the recent movement. In a majority of the other states, but one, or at most, two years have elapsed since their reorganization, all of the reports giving the membership as shown at the annual meetings in 1904, and most of them expect a large increase for 1905.

In addition to the historical data the summary gives the correct official names of the respective organizations, places and dates of meetings, names and addresses of offices, and methods of publishing proceedings, and is as follows:

Alabama.

The Medical Association of the State of Alabama was first organized in 1846. It was reorganized on the coincident membership plan, largely as the personal work of Dr. Cochran, beginning in 1868, but it was not until 1873 that the state association was made by law the state board of health, and the state board of medical examiners, and the county societies became the county boards of health, the organized profession being made in that year, and continuing since, as much a part of the civil government of state as the executive, judicial or legislative branches, although the last county society was not actually organized until 1888. The exact membership in 1868 is unknown, but it must have been small, as the total income from fees was about $500.00. The membership now embraces about 92 per cent. of the professional population, and the annual income is $2,500.00. This is unquestionably the most complete, compact and potential medical organization in this country, if not in the world, and it is able to confer benefits on the profession and people accordingly, but the fact that a considerable per cent. of the physicians of the state are not enrolled as members, and that no journal is maintained as a medium for promoting constant intercommunication and co-operation shows that much remains to be done, even there, before ideal conditions are secured.

C. C. Jones, East Lake, is president; L. C. Morris, Montgomery, secretary. The next meeting will begin at Montgomery April 18, 1905.

Arizona.

The Arizona Medical Association was organized in 1892. At the time of the reorganization in 1904 there were 75 members out of a total medical population of about 200. Four county societies have been organized during the year, and the physicians are so few and scattered in the other seven that hyphenated or district societies alone can meet existing needs. The annual income is only $120.00 but much professional interest has been aroused and a better future is anticipated.

W. H. Ward, Phoenix, is president; J. W. Foss, Phoenix, is secretary. The next meeting will be held at Prescott, beginning June 1, 1905.

Arkansas.

The Arkansas Medical Society was first organized in 1875, and was reorganized in 1902. At the annual meeting in 1904 the affiliated county societies had increased from none to 61, the membership from 192 to 756, and the annual income from about $600.00 to $1,572.00, the dues being decreased from three to two dollars. Under the stimulus of the movement a good medical law has been secured and put in operation, quackery has been suppressed at Hot Springs, where it has been a stench in the nostrils of both the profession and people, and in every way the increase in the interest and influence of the profession is reported as far exceeding the mere growth in membership and revenue. As 14 counties are still unorganized, with 663 eligible non-members in the state, and the transactions are still published in an annual volume instead of a live official journal, much remains to be done by councilors and other officers before the organization is complete.

J. P. Runyan is president, C. C. Stephenson is secretary, both of Little Rock. The next meeting will be held at that place beginning May 16, 1905.

California.

The Medical Society of the State of California was first organized in 1856, and reorganized in 1902. In 1904 the county societies had increased from about 18 to 34, the paid-up membership from 350 to 1,700, and the revenues from dues from $1,750.00 to $3,400.00, the dues being decreased from five to two dollars. The society maintains a live monthly journal instead of the annual volume of transactions. The organized profession has successfully resisted attempts to emasculate the strong medical law, a rigid and effective warfare has been instituted against quackery, and professional conditions have been improved in other lines. There are still 22 unorganized counties, and about 1,000 eligible non-members, but in some of these counties the physicians are so scattered as to make effective organization difficult, although it is recognized that much remains to be done.

Frank L. Adams, Oakland, is president; Philip Mills Jones, San Francisco, is secretary. The next meeting will be held at Riverside, beginning April 18, 1905.

Colorado.

The Colorado State Medical Society was first organized in 1870, and reorganized in 1902. In two years the county societies increased from 9 to 22, the paid-up membership from 280 to 560, and the revenues from about $1,400 to $1,650.00, the dues being cut down from five to three dollars. There are about 300 eligible non-members in the state and there are but two counties unorganized where there are enough physicians to maintain a society. A monthly journal has taken the place of the volume of transactions, a medical law, substantially as proposed by the legislative committee of the national association, has now been passed, and professional interest has been aroused and conditions improved in every way as compared with what existed under the old plan.

Connecticut.

The Connecticut Medical Society was first organized in 1792, and was reorganized in 1904. It had long been organized on the county plan, all of the eight counties having societies in affiliation with the state society for many years. There are 736 members, the annual income is $1,832.00 and the number of non-eligible physicians is unknown. Little change was necessary in reorganizing, but it was done to put the society in complete accord with the other states and the national association. Under its already effective organization many salutary reforms have been secured, amongst them being an operative and reliable system of vital statistics, and a school for township health officers, each being paid a diem and expenses while attending the meetings.

William E. Carmett, New Haven, is president; N. E. Wordin, Bridgeport, is secretary. The next meeting will begin May 24, 1905.

Florida.

The Florida Medical Association was organized in 1875, and reorganized in 1903. In the first year the county societies increased from 7 to 22, the membership from 170 to 236, and the revenues from about $500.00 to $708.00. There are still 23 unorganized counties, many of them large and sparsely settled, and in some instances counties have been hyphenated, or those desiring it held their membership in adjacent counties. The number of eligible non-members is unknown. Professional interest has increased greatly at Pensacola, Jacksonville, Tampa and many other places, and efforts are being made to secure better protection against quackery, as well as against pirates in the regular profession who overrun the health resort sections during the winter and migrate with the birds in the spring. The transactions are still published in pamphlet form.

Edward N. Leill is president, J. D. Fernandez is secretary, both of Jacksonville. The next meeting will be held at that place beginning April 20, 1905.

Idaho.

The Idaho State Medical Society was organized in 1893 and reorganized in 1901, district being substituted for county societies on account of the doctors being so widely separated. In three years the membership increased from 47 to 101 and the revenues from $235.00 to $444.00. Under the stimulus of the new order of things the medical law has been strengthened and better enforced, and professional interest has increased greatly. The proceedings are published in such journals as will do so, usually in the *Portland Sentinel*.

R. L. Nourse, Hailey, is president: E. E. Maxey, Boise, is secretary. The next meeting will begin at Boise October 3, 1905.

Indiana.

The Indiana State Medical Association was organized in 1849, and reorganized in 1903. The county society plan, with coincident membership, had been in operation in that state for fifteen years but had not been actively pressed. In one year's time the number of county societies increased from 75 to 88, some of them almost ideal in their work and results, the membership from 1,724 to 2,107 and the revenues from $1,724.00 to $2,107.00, the dues being but one dollar. Every phase of professional interest has advanced and been improved during the same time and a still brighter future is anticipated. There is much room for improvement, as there are over 3,000 eligible non-members in the state.

The transactions are still published in an annual volume but this will hardly continue.

Geo. T. McCoy, Columbus, is president; F. C. Heath, Indianapolis, is secretary. The next meeting will begin at West Baden June 7, 1905.

Iowa.

The Iowa State Medical Society was organized in 1851 and reorganized in 1903. The exact number of county societies at that time is unknown, as affiliation was not necessary for membership, but there were a few active and some nominal ones. In one year's time 94 counties were regularly organized, including all but 5 in the state. The paid-up membership has increased from 650 to 1,517, and the revenues from about $1,300.00 to $3,034.00. A law has been secured forbidding "nasty advertising," and in every way professional interest and enthusiasm has been aroused. There are still about 2,500 eligible non-members. The transactions are published in an official organ, the *Iowa State Medical Journal*, and then bound in book form.

D. C. Brockman, Ottumwa, is president; V. L. Treynor, Council Bluffs, is secretary. The next meeting will begin at Des Moines May 24, 1905.

Kansas.

The Kansas Medical Society was organized in 1866 and reorganized in 1904. No meeting has been held since the new plan was adopted and exact figures are not available, but there were about 500 members to begin with; 40 counties have been organized already, 65 are unorganized. The councilors and other officers are actively at work and greatly improved conditions are anticipated by the time of the annual meeting. The transactions are published in an excellent monthly journal.

Lawrence Reynolds, Horton, is president; Chas. S. Huffman, Columbus, is secretary. The next meeting will begin at Wichita May 3, 1905.

Kentucky.

The Kentucky State Medical Association was organized in 1847 and reorganized in 1902. At that time there were few county societies and the paid-up membership was 290. In 1904 there were 97 county societies and over 1,600 members, the revenues had increased from $870.00 to $3,200.00, after reducing the fees from three to two dollars. A live monthly journal has been substituted for an obsolete volume of transactions and the profession is active and united to a degree never before known in its history, attention being given to scientific, business and legislative affairs in the county societies in a way and to a degree never before possible. The medical law is probably now more satisfactorily enforced than in any other state in the Union, although the law is not stronger than others, because of the cordial co-operation of the profession of every school of practice in the work, and quackery has been practically eliminated. A salaried health official has been provided for each city and county, vaccination can be made compulsory in any jurisdiction, a comprehensive system of railway sanitation has been recently put in operation, the higher courts are constantly extending the powers of the health authorities in their constructions of the laws, and the public press is gradually leading and elevating public sentiment to a greater appreciation of the unselfish work of the profession in all of these matters. Much more remains to be done, as there are 22 counties in the sparsely settled mountain regions unorganized, and 1,800 eligible non-members still to be brought in. The transactions are published in a strong medical journal edited by the secretary.

Frank A. Clark, Lexington, is president: James B. Bullitt is secretary. The next meeting will begin in Louisville October 5, 1905, the time having been changed from spring to fall in accordance with the recommendation of the American Medical Association at Atlantic City.

Maryland.

The Medico-Chirurgical Faculty of the State of Maryland was organized in 1798, and reorganized in 1904. Most of the counties were organized immediately in advance of the adoption of the plan in the state and as no meeting has been held since it can only be said that a society exists in every county, that the councilors are active, and that the outlook is encouraging. The membership in 1904 was 693, and the revenues $2,300.00. No estimate of the eligible non-members has been made, but it was large at the beginning of this movement. The proceedings are published in an annual volume.

E. N. Brush, Towson, is president; John Ruhrah, Baltimore, is secretary. The next meeting will begin at Baltimore May 25, 1905.

Massachusetts.

The Massachusetts Medical Society was organized in 1780, and has always had coincident local and state membership,

small districts, not county lines, marking the boundaries of the local organizations. The number of members and eligible non-members is not reported, but its revenues and assets are large, and on account of the completeness and compactness of organization, and the high character and activity of its members it has always been one of the most influential medical bodies in this country. Its state board of health has taken the lead in many features of public health work, particularly in all matters relating to the protection and purification of water supplies and the disposal of sewage and factory wastes, its appropriatives for these purposes being practically unlimited. It manufactures and distributes vaccine and antitoxins, and has been able to secure and administer a practical statute regulating the collection of vital statistics, and is effective and is sustained by professional and public sentiment to an extent which it has not been possible in most other states. The transactions are published in an annual volume.

Arthur T. Cabot, Boston, is president; Francis W. Goss, Roxbury, is secretary. The next meeting will begin in Boston June 13, 1905.

Michigan.

The Michigan State Medical Society was organized in 1819, and reorganized in 1902. At that time there were 11 county societies, 452 paid-up members, and the annual income was $1,615.00. In two years 83 counties, all in the state, had been organized into 62 societies, the membership had increased to 1,772, and the income to $4,813.00, although the dues were cut down. Through the increased power given by this reorganization the medical law has been strengthened, "nasty advertising" has been prohibited, representation on the board of regents of the State University has been conceded to the profession, and in almost every way the influence and usefulness of the profession have been greatly extended. The work is in its infancy, as there are about 3,500 eligible non-members, but the councilors and other officers are active and the future of the profession was never before so promising. The transactions are published in a live, progressive monthly journal.

B. D. Harison, Sault Ste. Marie, is president; Andrew P. Biddle is secretary. The next meeting will begin at Petoskey June 28, 1905.

Minnesota.

The Minnesota State Medical Association was organized in 1869, and reorganized in 1903. In one year the membership increased from 492 to 930, the component societies from 12 to 36, some of them hyphenated and including every county, and the revenues have increased from $1,158.00 to $2,314.00. The increased interest in professional affairs has been marked, especially as shown in the regular attendance and work in the local societies, and the outlook was never before so promising. There are from 500 to 700 eligible non-members, and the transactions are published in an annual volume.

J. W. Bell, Minneapolis, is president; Thomas McDavitt, St. Paul, is secretary. The next meeting will begin at St. Paul June 1, 1905.

Missouri.

The Missouri State Medical Association was organized in 1858, and reorganized in 1903. In one year the number of affiliated county societies increased from 14 to 70, the membership from 258 to 1,600, and the revenues from $774.00 to $3,200.00, although the dues were reduced from three to two dollars. There are 45 unorganized counties and about 3,600 eligible non-members, but new societies are being organized constantly and a great increase is confidently expected before the next meeting, as conditions are steadily improving. Much remains to be done, as legislation has been difficult to obtain, and still more difficult of enforcement, but these are expected to disappear before a really organized and harmonious profession, which, for the first time in the history of the state, now seems possible. The transactions are published in an excellent monthly journal.

Jabez N. Jackson, Kansas City, is president; C. M. Nicholson, St. Louis, is secretary. The next meeting will begin at Excelsior Springs May 16, 1905.

Mississippi.

The Mississippi State Medical Association was organized in 1856, and reorganized in 1903. In one year the number of county societies increased from 2 to 51, the membership from 225 to 715, and the revenues from about $500.00 to $1,430.00. There are 25 unorganized counties and about 1,700 eligible non-members, so that the work has just began. The transactions are now published in a monthly journal and only a little increased effort is necessary on the part of the councilors and other officers to complete the organization and make it most effective.

T. J. Mitchell, Jackson, is president; J. J. Haralson, Forest, is secretary. The next meeting will begin at Jackson, April 19, 1905.

Montana.

The Montana State Medical Association was organized in 1891, and reorganized in 1903. In one year the county societies have increased from 5 to 9, the membership from 65 to 142, and the annual income from $130.00 to $284.00. There are 17 unorganized counties, sparsely settled, and only 50 eligible non-members. No regular publication of the transactions is made.

B. C. Brooke, Helena, is president; Grace W. Cahonn, Butte, is secretary. The next meeting will begin at Butte May 18, 1905.

Nebraska.

The Nebraska State Medical Association was organized in 1868, and reorganized in 1903. County societies were organized in anticipation of the adoption of the plan by the state and in 1904 the number of county societies had increased from a very few to 62, the membership from 275 to 736, and the annual income from $550.00 to $1,472.00. Professional power and usefulness have grown rapidly. An efficient law regulating the collection of vital statistics is one of the many evidences of this improvement in both professional and public sentiment. There is much still to be done, as there are about 850 eligible non-members. There are 28 unorganized counties, but no physicians in 5 of these, and so few in 20 others that a society would be impossible. The physicians in such counties can hold their membership in an adjacent county. The transactions are published in journal form, but this is not owned by the association.

R. C. McDonald, Fremont, is president; A. D. Wilkinson is secretary. The next meeting will begin at Beatrice, May 2, 1905.

New Jersey.

The Medical Society of New Jersey was organized in 1766, and reorganized in 1903, little change being required to conform its constitution and by-laws to those of the standard plan. Affiliated societies already existed in 20 of the 21 counties and the other was organized during the year. The membership increased during the year from 1122 to 1200 and as the annual dues were increased from $1.50 to $2.00 the income was correspondingly improved. This had long been one of the organized states, with good local societies, coincident membership and a monthly journal, its medical and health laws were well ordered and more than usually effective. Work remains to be done, however, as there are between 500 and 600 eligible non-members to be brought in and many health and medical reforms yet to be inaugurated, as well as constant watchfulness required to guard what has already been secured.

Walter B. Johnson, Paterson, is president; W. J. Chandler, South Orange, secretary. The next meeting will begin at Asbury Park June 20, 1905.

New Mexico.

The New Mexico Medical Association was organized in 1885, and reorganized in 1904. No meeting has been held since but the membership has increased from 53 to 76, leaving but 20 eligible non-members; the income has increased from $53.00 to $228.00. The reorganization has brought the profession closer together and this has been shown in the active and effective part it has taken in territorial legislation. The coming meeting at Las Vegas May 10, promises to be the best ever held. The proceedings are not published in regular form.

Edwin B. Show, Las Vegas, is president; G. H. Fitzgerald, Albuquerque, is secretary.

North Carolina.

The Medical Society of the State of North Carolina was organized in 1849, and reorganized in 1903. In one year the affiliated county societies increased from 8 to 90, the paid-up membership from 285 to 1,060, and the annual income from $600.00 to $2,120.00. This state has long had one of the most effective medical laws, and a fine profession, but the improve-

ment in power and usefulness has been as remarkable as the increase in numbers and local societies. This was shown by the influence brought to bear on and the prompt defeat of an unjust bill favoring osteopathy, and in many other ways. There are only 250 eligible non-members and most of these can be easily brought in so great is the enthusiasm for a perfect organization. The transactions are still published in an annual volume, but nearly everything is also published in the two journals in the state.

D. T. Taylor, Washington, is president; J. Howell May, Waynesville, is secretary. The next meeting will begin at Greenboro May 23, 1905.

North Dakota.

The North Dakota State Medical Association was organized in 1887, and reorganized in 1904. The number of organized counties has increased during the year from 2 to 44, leaving but 3 out, most of these being combined on account of the sparse medical population. There were 153 members in 1904, and the annual income was $306.00. These will be markedly increased but the reports are not yet available from many counties. A good medical law has been secured during the year and the increase of interest is manifest. There were about 250 eligible non-members last year. The transactions are published in pamphlet form.

James A. Rankin, Jamestown, is president; Ernest C. Wheeler, Fargo, is secretary. The next meeting will begin at Grand Forks May 24, 1905.

Ohio.

The Ohio State Medical Association was reorganized in 1902. In two years the number of affiliated county societies increased from 41 to 73, the membership from 992 to 2,640, and the annual income from $1,984.00 to $2,640.00, the dues being decreased to one dollar. The increased interest, usefulness and power of the profession is manifest almost everywhere, and this is gaining, although all this seems small compared with what is yet to be accomplished. There are still 4,200 eligible non-members and 15 counties remain to be organized. The transactions are published in an annual volume, but there is a strong sentiment in favor of a state journal.

S. S. Halderman, Portsmouth, is president; Frank Winders, Columbus, is secretary. The next meeting will begin at Columbus May 10, 1905.

Pennsylvania.

The Medical Society of the State of Pennsylvania was organized in 1848, and reorganized in 1902, although long having coincident membership and the general features of the uniform plan. In two years the county societies increased from 55 to 59, leaving but 5 unorganized, and the membership from 3,633 to 4,140. For obvious reasons the improvement has not been so manifest in this as in the states heretofore so imperfectly organized, but the growth in both membership and interest has been marked, especially in Philadelphia, and in the state society. There are still 3,500 eligible non-members, and ample work to do in many other directions, with a strong profession capable of almost anything back of and in the movement. The transactions are published in an excellent journal.

Adolph Koenig, Pittsburg, is president; Cyrus Lee Stevens, Athens, is secretary. The next meeting will begin at Scranton September 26, 1905.

Rhode Island.

The Rhode Island Medical Society was organized in 1812, and reorganized in 1904. Until that time all applicants for membership were required to pass an examination independent of the examination for a state certificate. The number of affiliated county societies at that time was 4, which has been increased to 6, having but one unorganized. The membership has increased from 275 to 302, and the annual income from $2,071.00 to $2,150.00. Although the time has been so short an undoubted increase is noted and it is probable that an organizer will be appointed to bring in the eligible non-members. The transactions are published in a journal and then are bound into an annual volume.

William R. White, Providence, is president; Stephen A. Welch, Providence, is secretary. The next meeting will begin in that city June 1, 1905.

South Dakota.

The South Dakota State Medical Association was organized in 1882, and reorganized in 1903. At that time there was one county and one district society. The counties of the state were divided into nine hyphenated or district societies, and eight of these are well organized. In one year the membership increased from 86 to 175, but there are about 325 eligible non-members and much to be done. The annual income increased from $150.00 to $350.00, and will be $500.00 or more this year. The improvement in professional conditions has been very marked. An effective medical law was secured and another providing for the collection of vital statistics, but it has been equally apparent in the better social and ethical relations. The transactions are published in an annual volume.

Charles B. Mallery, Aberdeen, is president; William Edwards, Bowlder, is secretary. The next meeting will begin at Deadwood July 5, 1905.

Tennessee.

The Tennessee State Medical Association was organized in 1830, and reorganized in 1902. In two years the affiliated county societies increased from 18 to 63, the membership from 386 to 1,097, and the annual income from $772.00 to $2,194.00. There are still 32 unorganized counties, most of them in the sparsely settled mountain regions, and there are about 1,500 eligible non-members. There has been an awakening in regard to all professional matters, but very much remains to be done in almost every department. The transactions are published in an annual volume.

Paul F. Eve is president, Deering J. Roberts is secretary, both of Nashville. The next meeting will begin in that city April 11, 1905.

Texas.

The State Medical Association of Texas was organized in 1869, and reorganized in 1903. In one year 123 county societies, including 160 counties, were formed, the membership increased from 435 to 2,390, and the annual income from $1,815.00 to $5,986.00. The increase in professional interest and enthusiasm has been more remarkable than in almost any other state, and is still growing. The difficulties met by the earnest, active, self-sacrificing councilors seemed almost insurmountable but they were soon overcome and turned to advantage. At first there were large district societies to which old members were naturally wedded, but these were woven into the plan and made an element of strength, and so with other seeming obstacles. There is still a great work before the Texans to which they will prove fully equal. There are 83 unorganized counties, some of them a hundred miles across, without a county town, civil government or physician. They cannot be organized yet, even by Texas councilors. Others have but one or two doctors, but there are 2,307 eligible non-members, and many of these will be brought in this year. The transactions are still published in an annual volume.

F. E. Daniel, Austin, is president; I. C. Chase, Fort Worth, is secretary. The next meeting will begin at Houston April 25, 1905.

Vermont.

The Vermont State Medical Society was organized in 1813, and reorganized in 1901. This state was already organized on the county plan in a measure, 12 of the 14 having societies. In three years the membership increased from 150 to 350, but the annual income was less, as the dues were reduced from three to two dollars. As a result of this movement Dr. Gorham reports the interest in the profession greatly increased in every way, and that a new and better medical law has just been secured. Much work is still needed, as there are about 600 eligible non-members. The transactions are published in an annual volume.

P. E. McSweeney, Burlington, is president; George H. Gorham, Bellows Falls, is secretary. The next meeting will begin at Burlington October 12, 1905.

West Virginia.

The West Virginia State Medical Association was organized in 1867, and reorganized in 1902. In two years the county societies have increased from 2 to 25, the paid-up membership from 200 to 600, and the annual income from $400.00 to $1,200.00. There has been a marked improvement in ethical, social and other relations, a new examining law has been secured and other reforms are in prospect as the profession becomes really organized. There are 30 unorganized counties, chiefly in the mountain regions, and about 1,000 eligible non-members in the state. The transactions are published in an annual volume.

T. M. Hood, Clarksburg, is president; William W. Golden, Elkins, is secretary. The next meeting will begin at Wheeling May 24, 1905.

Wisconsin.

The State Medical Society of Wisconsin was organized in 1841, and reorganized in 1903. In one year the organized counties increased from 8 to 72, every one in the state. The paid-up membership increased from 700 to 1,350, and the annual income from $2,100.00 to $2,700.00, the dues being cut down from three to two dollars. Still more active work has been carried on since the last meeting but the returns are not yet available. There are no more counties to be organized, and there were only 900 eligible non-members left in the state. Dr. Sheldon reports that "the effect of the county societies has unquestionably stimulated a far greater interest in the profession at large. It is developing a true professional spirit and bringing the individual members all over the state into closer touch, and the prospects are promising for still greater improvement in all ways." The transactions are published in a monthly journal.

C. W. Oviatt, Oshkosh, is president; Charles S. Sheldon is secretary. The next meeting will be held at La Crosse June 8, 1905.

The United States.

THE AMERICAN MEDICAL ASSOCIATION.

The American Medical Association was organized in 1847, and reorganized in 1901. During the intervening period—from June 1, 1901, to January 1, 1905—the membership increased from 10,817 to 17,570.

The association was organized on a broad and comprehensive basis, and was a strong and influential body from the first meeting. Always a delegate body, and with the elevation of the standard of medical education as one of its first objects, it invited representation from reputable bodies of medical men of every kind and degree, and courted it from the faculties of medical colleges. With this as a primary and evident duty, and with distinguished teachers, led by the masterful Gross, and untiring Davis, dominating its councils and shaping its policies always, it seems strange and almost paradoxical that this was the one medical interest which it did not materially influence, the regulation and elevation of standards being finally determined by the licensing bodies in the several states.

While the membership never before embraced such a large per cent. of the total medical population of the country as it now does, the meetings always attracted the attention of the best and strongest men from every section, the standard for scientific work was high, the social features were a delight, and each annual meeting was justly considered a marked period in the history of the profession and in the lives of the participants. In all of these fields the achievements of the Association were always conspicuously successful.

In its prevision and supervision of the material interests of the profession, legislative, financial and otherwise, as was true in regard to medical education, the failure along all lines was equally conspicuous. Nor was it difficult to account for either the success or the failure. The scientific men were divided into appropriate sections, and small groups of individuals, each with talent for that special field, worked out the problems in the line of their own life work. As has been said, it was designed from the beginning as a delegate body, but as the years went by this was lost sight of in practice, every one in attendance became a member of the business body, which was too unwieldy for the intelligent consideration or discussion of any weighty proposition, the evolution having been exactly the opposite of what had developed in the scientific departments, and for years the business of the profession of this country, in so far as it was transacted in the public body, was run as a widow runs a farm. The only safety then was in a strong, conservative, business committee, and the good judgment of the officers, and while little or no progress was made, the profession was protected from retrogressive and actual harm. A debt of everlasting gratitude is due to the wise leaders of that critical period.

From the early eighties Dr. N. S. Davis, always wise and forehanded, led the movement for reorganization, and in 1888, as chairman of a committee which had given careful study to existing condition and necessities, he presented a comprehensive scheme for this purpose, very similar to the one proposed and adopted at St. Paul in 1901. This plan makes the county societies not only the units of organization but the origin and basis of all authority, as nearly as possible in accordance with our system of civil government, specially selected delegates from these primary organizations making up the business bodies of the state associations, and these in turn selecting specially qualified men from the rank and file of the entire profession to represent the state in the national body. In this way the business of the profession for the entire country is looked after by a small body, the house of delegates, limited to 150 members, specially selected by the delegates from the county societies on account of their supposed training and qualification for such duties. Through such plan the Association hopes ultimately to have the county societies reach and help every physician within their respective jurisdiction, in every possible way, scientific, social or material, so far as it can do so.

This work of the association is absolutely altruistic. There is no American Medical Association except the physicians who compose its membership. It has now a large annual income, but every dollar of this belongs to the members, each being a stockholder to the extent of his annual dues. No one can hold more or less. The nine trustees who manage this fund can have no motive except to act for the best interest of the profession at every step. Trustees like Dr. William H. Welch, and others equally disinterested, attend these meetings and spend day after day in this self-sacrificing labor, for the good of the profession, receiving absolutely no compensation except their bare traveling expenses. In addition to its management of *The Journal*, now easily the foremost medical periodical in the world, and the work of organization, the responsibility and expense of which it has gladly borne, the association has gone back to the original purpose for which it was founded and established a Council on Medical Education to make a real investigation of the teaching methods of this country and acquaint the profession of the results. It has established a Council on Pharmacy and Chemistry with far-reaching powers and possibilities. It is preparing for a reliable National directory, owned by the profession and managed in its interest. It has in preparation model medical practice and public health laws to be recommended to the respective states for their approval and adoption in general principles, in the hope that practical uniformity will make reciprocity in licensure and other similar benefits possible to the profession of this country. These things are all being worked out. Besides, it has in contemplation a university extension course to be offered to all county society members who will avail themselves of it.

In acting as the agent and mouthpiece of the 120,000 medical men in this country the Association fully realizes the gravity of the responsibility it has assumed. The personnel of the management will change at the pleasure of the constituency, but it is believed that men equal to the needs of the hour will always be found. An order of statesmanship and breadth of grasp will be demanded when the profession purifies itself and comes into its own, which might appall those now at the helm, but nature's laboratories are inexhaustible and, as in the past, men will always be found to fill the hour and the duty.

Civic Sanitation Committee.

In the April number of the *California Medical and Surgical Reporter* are some suggestions as to a possible field of activity for the Los Angeles County Medical Association, which might well be noted by all medical societies in towns large enough to have municipal forms of government, dealing with sanitary problems. After commenting on the fact that manufacturers, merchants and property owners always present their views and endeavor to protect their interests on proposed legislation affecting them, while medical and sanitary legislation is often neglected, the *Reporter* asks:

"Why would it not be wise to have a standing committee on civic sanitation, the duty of which committee would be to keep a close watch on the city's hygienic and sanitary needs, reporting on needed measures at the various meetings of the society, obtaining the proper resolutions from the society, placing these resolutions before the proper municipal authorities and seeing to it that they receive proper consideration? If we are to remain true to the tenets of our profession we should ever be willing to give our best efforts not only to cure, but to prevent diseases."

This is an eminently practical suggestion for county societies looking for an opportunity directly and vitally to influence local conditions. A permanent committee from each

county society would soon become recognized as an authority on sanitary matters as well as an expert body for consultation in proposed legislation.

Colorado.

EASTERN COLORADO MEDICAL ASSOCIATION.—Representatives from Morgan, Washington and Yuma counties met at Wray, March 11, and organized this association with the following officers: President, Dr. Earl D. McGill, Wray; vice-president, Dr. Elisha J. Bales, Wray; secretary, Dr. George B. Bilsborrow, Yuma; treasurer, Dr. N. J. Phelan, Akron, and censors, Drs. A. L. Howe, Wray; N. J. Phelan, Akron, and W. E. Turner, Brush.

Iowa.

FREMONT COUNTY MEDICAL SOCIETY.—On call of Dr. H. J. Piper, Randolph, seven physicians of the county met at Sidney, February 1, and reorganized the county medical society on the standard plan, with the following officers: Dr. Evan F. Cowger, Riverton, president; Dr. Thomas G. Stevens, Sidney, vice-president; Dr. Edwin E. Harris, Tabor, secretary-treasurer, and Drs. H. J. Piper, Randolph, and Willis G. Morris and James M. Lovelady, Sidney, censors.

Kansas.

CHASE COUNTY MEDICAL SOCIETY.—Physicians of the county met at Cottonwood Falls, March 22, and organized a county medical society, electing Dr. Frank T. Johnson, Cottonwood Falls, president, and Dr. Samuel Steele, Strong, secretary.

SUMNER COUNTY MEDICAL SOCIETY.—Dr. O. J. Furst, councilor of the fourth district, organized this society March 29. The following officers were elected: President, S. T. Shelly, Mulvane; vice-president, H. A. Vincent, Corbin; secretary-treasurer, T. H. Jamieson, Wellington; delegate, J. L. Halleday, Wellington; censors, W. E. Bartlett, F. G. Emerson and S. W. Spitler. There are 24 charter members in the society.

Missouri.

FRANKLIN COUNTY MEDICAL SOCIETY.—The physicians of Franklin County met at Pacific, April 3, and after the discussion of the subject of organization by Dr. F. J. Lutz of St. Louis, councilor of the district, Dr. J. N. McCormack of Kentucky formed a new society under an existing charter and the Standard Constitution and By-laws. The following officers were elected: President, H. A. Booth; vice-president, J. P. Donnigan, Sullivan; secretary-treasurer, A. C. Brown, Moselle; censors, John A. Rush, Gray's Summit; W. P. Mattox, Sullivan, and H. A. Poppenhausen, Washington; delegate, A. L. McNay, Pacific.

Montana.

GALLATIN COUNTY MEDICAL SOCIETY.—The physicians of the county met at Bozeman, March 7, and organized a county medical society with the following officers: President, Dr. John M. Waters, Bozeman; vice-president, Dr. James F. Blair; secretary, Dr. Cornelius B. Boyle; treasurer, Dr. James E. Ragsdale; trustees, Drs. David H. Patterson, Joseph Piedalue and Clyde W. Jump, and delegate to the state association, Dr. John M. Waters, all of Bozeman.

New Mexico.

DONA ANA COUNTY MEDICAL SOCIETY.—The physicians of the county met recently in Las Cruces and organized a county medical society with Dr. Bruce E. Lane, Las Cruces, president; Dr. John H. Johnson, Organ, vice-president, and Dr. R. E. McBride, Las Cruces, secretary and treasurer.

Ohio.

ASHLAND COUNTY MEDICAL SOCIETY.—Physicians of Ashland County met at Ashland March 14, and reorganized the county society on the standard plan, electing the following officers: Dr. David S. Sampsell, Ashland, president; Dr. Jacob Fridline, Ashland, vice-president; Dr. Robert C. Kinnaman, Ashland, secretary; Dr. William H. Wirt, Loudonville, treasurer; Drs. Daniel E. Pocock, Jeromeville; Allen W. Budd, Perrysville, and Abram L. Sherick, Ashland, censors; Dr. Frederick V. Dotterweich, Ashland, delegate to the state association, and Dr. Charles B. Scott, Loudonville, alternate. A committee consisting of Drs. W. M. McClellan, Abram L. Sherick and Emery, all of Ashland, was appointed to make the necessary changes in the constitution and report at the next meeting.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore, July 11-14, 1905.

Medical Assn. of State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
Amer. Medico-Psychological Assn., San Antonio, Tex., Apr. 18-21.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association, Jackson, April 19.
Amer. Assn. Pathologists and Bacteriologists, Chicago, Apr. 21-22.
American Gastro-Enterological Assn., New York, April 24-25.
Medical and Chirurg. Faculty of Maryland, Baltimore, Apr. 25-27.
Texas State Medical Association, Houston, April 25-28.

PHILIPPINE ISLANDS MEDICAL ASSOCIATION.

Second Annual Meeting, held at Manila, March 1-4, 1905.

The meetings were held in the library of the government laboratories. At the opening session, addresses were made by Governor General Luke E. Wright and Dean C. Worcester, secretary of the interior. The presidential address was given by Dr. John R. McDill.

The papers read during the three days' session were mainly on tropical diseases and problems peculiar to the Philippine Islands. Among the subjects presented were the following: "Beri-Beri," by Dr. Erwin Baelz, emeritus professor of medicine, University of Tokyo; "Glaucoma Among the Friars," by Dr. Clarence J. Miner; "Symptoms, Diagnosis and Treatment of Amebic Dysentry in the Tropics," by Dr. W. E. Musgrave; "Chinese Medicine," by Dr. Tee Han Kee; "History of Plague in the Philippine Islands," by Maximilian Herzog, and "Endemic Neuritis," by Dr. J. M. Wheate.

The session closed Saturday night with a dinner at the Army and Navy Club, at which the Governor General, the Secretary of the Interior, Major-General Leonard Wood, Col. J. B. Girard and other distinguished visitors were guests of honor. The society numbers 61 members and has on its rolls American, English, German, Japanese, Spanish and Philippine physicians.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

Fifteenth Annual Meeting, held in Chicago, April 10, 1905.

The President, DR. SAMUEL C. JAMES, in the Chair.

Officers Elected.

The following officers were elected to serve for the ensuing year: President, Samuel C. James, Kansas City, Mo.; vice-presidents, William H. Earles, Milwaukee, and Eli H. Long, Buffalo, N. Y.; secretary-treasurer, Fred C. Zapffe, 1764 Lexington Street, Chicago; judicial council, W. J. Means (chairman), Columbus, Ohio; R. Winslow, Baltimore; T. H. Hawkins, Denver; P. Ritchie, St. Paul; G. M. Kober, Washington; H. Ward, Lincoln, Neb.; J. M. Dodson, Chicago.

The next meeting will be held in Pittsburg, Pa., March 19, 1906.

In his address as president, Dr. James reviewed the work done by this association and its influence on medical education.

New Constitution.

The principal business transacted in the executive session was the adoption of a new constitution and by-laws, which differ from the old in the following requirements: The annual dues are raised to $25.00. The minimum entrance requirement is made a diploma from an accredited high school, normal school, or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study, embracing not less than two years (four points) of foreign languages, of which one must be Latin; two years (four points) of mathematics; two years (four points) of English; one year (two points) of history; two years (four points) of laboratory science, and six years (twelve points) of further credit in language, literature, history, or science.

(One point is not less than five periods per week of forty-five minutes each for eighteen weeks.) Or the applicant is required to take an examination in prescribed subjects, equaling a credit of 30 points, or he must present certificates from reputable instructors recognized by the superintendent of public instruction in the city or state in which the college is located, or by any state board of medical examiners duly authorized by law, which may be accepted in lieu of any part of this examination.

Provision is made for a four years' course of study in four calendar years, each annual course to have been of not less than thirty teaching weeks' (including examinations) duration, and at least ten months intervening between the beginning of any course and the beginning of the preceding course.

Credit may be given to the holder of a bachelor's degree for any work in the medical branches which he has successfully completed in his college course only so far as it is the full equivalent of corresponding work in the medical curriculum. The holder of such degree may also be given time credits of not exceeding more than one year; provided, he has had at least 40 hours in physics, 144 hours in chemistry, 24 hours in osteology, 292 hours in human or comparative anatomy, 124 hours in histology, 85 hours in embryology, 145 hours in physiology, and 46 hours in materia medica, provided, that the applicant satisfies the professors of the chairs mentioned in the medical school as to his proficiency in these first-year medical studies.

Every student is obliged to attend 80 per cent. of the exercises in every annual course of study for which he seeks credit, and no credit shall be given unless he attains a grade of at least 70 per cent. or its equivalent in any other marking system. No student shall be graduated unless he attains a passing grade in each and all subjects of the required curriculum.

Article 4 provides for the following: Between January 1 in any year and the annual meeting of the association each college in membership shall prepare, on blanks of standard form and size, furnished by the secretary, a list of all students matriculated since the last report, showing for each case the character and extent of the credentials for entrance, the conditions entered against said student and the standard accorded him. Such reports must be certified to by the dean and registrar or secretary of the college. Violations of the constitution are punishable by expulsion from the association.

Provision is also made for a permanent visitation committee consisting of the president, secretary and chairman of the judicial council, whose duty it is to visit and investigate all colleges holding membership at least once every five years for the purpose of determining whether the members are enforcing the laws of the association.

New Members.

The judicial council reported favorably on the applications for membership of the School of Medicine, University of Indiana, Bloomington, Indiana, for the first two years of the medical course (the last two not being given), and the Medical Department of Washington University, St. Louis, Mo.

Committees Appointed.

The following committees were appointed: To represent the association at the conference meeting of the Council on Medical Education of the American Medical Association to be held in Chicago, April 20—S. C. James and J. M. Dodson. To represent the association at the meeting of the American Confederation of Reciprocating, Licensing and Examining Medical Boards, to be held in Indianapolis, April 27—F. C. Zapffe and W. J. Means. To represent the association at the meeting of the National Confederation of State Licensing and Examining Boards, to be held in Portland, July 10—S. C. James and F. C. Zapffe. To investigate liberal arts colleges with reference to the purely scientific subjects embraced in the medical curriculum and taught by them, for the purpose of determining the credit that may be given for such work (not yet named).

(To be continued.)

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AMERICAN SOCIETY OF TROPICAL MEDICINE.

(Concluded from Page 1140.)

Slow Progress at the Isthmus.

DR. JOSEPH MCFARLAND showed a series of lantern slides made from photographs taken on the isthmus, giving a general idea of the country, the cities of Colon and Panama, the excavations thus far made on the canal, and of the canal hospital at Ancon. The chief impression that he had brought back was that the isthmus was a God-forsaken place, in which very little was being done. He had been much disappointed to find so little visible evidence of actual progress in canal construction. He found the principal hospital at Ancon improperly equipped and destitute of such essential paraphernalia as mosquito wire at the windows and microscopes for studying the cases. Considerable in the way of adjusting the sanitary affairs has been accomplished in the city of Panama, but the good that has been done seems to be counteracted by the conditions at Colon. He was under the impression that the canal never could be built unless an entire reorganization of the commission and a complete change in the methods is brought about.

Impressions of Panama and the Pan-American Medical Congress.

DR. ROLAND G. CURTIN said that the climate of Panama was typically tropical. When he arrived he was told that the rainy season was over and that the dry season had begun. It was not excessively dry, however, as it rained every day he was there, and five times the first day. The real rainy season usually lasts eight or nine months. At Colon there may be as much as 200 inches of rain in one year. The temperature varies from 85 to 96 F., in the shade. There are sometimes storms and even cyclones during the rainy season. The population of the city of Panama is 20,262, 90 per cent. being negroes, 5 per cent. white and 5 per cent. Indians and Chinese. The negroes are apparently healthy and surprisingly free from rickets.

The sanitary problems which Colonel Gorgas has before him, as chief sanitary officer of the commission, are exceedingly difficult. There are two cities, Colon and Panama, which must be placed under rigid quarantine, provided with a regular, wholesome water supply, under-drained, whose swamps must be drained, and in which adequate hospital facilities must be provided. Much has already been begun. The swamps and ditches found along the railroad have been drained; the filthy back yards have been cleaned; barrels for refuse furnished and covered; cisterns covered; cess pools cleansed, and standing water has been properly oiled to prevent the propagation of mosquitoes. He was well satisfied that the sanitary bureau was well managed and in excellent hands, all that is wanted being an opportunity to work without hindrance.

The climate is not so dangerous as has been represented. Four hundred United States marines are stationed at Empire, on Culebra Hill, and up to the time of his visit there had not been a single death among them, and the percentage of sickness was not larger than at an average military post. The prophylaxis of yellow fever is based entirely on the mosquito theory of its origin.

Malaria is not more common at the isthmus than in some parts of our own country, but it is an "all-the-year-round" disease. Dr. Gorgas states that the blood of 29 out of 44 school children examined at Bahio was found to contain the parasites. Beriberi is extremely prevalent and is always present in Panama city and is the cause of many deaths. Dysentery exists, but has never been epidemic.

Panama and the Panama Canal.

DR. SENECA EGBERT gave a brief history of the isthmus and the canal from the time of the discovery of the Pacific by Balboa (1513), and the founding of the old city of Panama (1519), until the present. Canals to connect the two oceans across this isthmus have been projected ever since 1520, and the republic of Colombia has been granting concessions for

the purpose since 1835, but actual work was first begun in 1881 by de Lesseps' company and was carried on by it until 1892. The $260,000,000 which the company spent in that time actually represents more than $1,000 for every linear foot along the line of the canal from ocean to ocean, or more than one dollar for every minute of time from the day Balboa first set foot on the isthmus until the present. A new company was organized with a comparatively small capital in 1894 and worked steadily, though on a small scale, during the next ten years. It is to this company that the United States is paying $40,000,000 for the property in its present state and for the concessions held by it.

As to the canal itself, it is almost two-fifths completed, and as practically all the future problems are now foreseen, American skill and enterprise should solve these and the work should be carried to completion speedily, honestly and efficiently.

Of these problems the most imminent, persistent and serious are those pertaining to the tropical diseases which prevail throughout the canal zone and which it is the province of this society to investigate. Consequently the chief sanitary officer of the canal work should be pre-eminent in his domain and should have every facility and assistance that the resources of our government and our science can give.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held March 9, 1905.

Dr. A. BERN HIRSH in the Chair.

Simulated Tabes with Ocular Paresis and Myosis in the Unaffected Eye.

DR. J. O. ARNOLD'S patient, 38 years of age, was for many years a worker in metallic lead, although there were no symptoms of lead poisoning. The peculiarity of the pupils was first noticed ten years ago, at which time he had no symptoms. Four years ago he came under the care of the author for an attack of gonorrhea, at which time there was very little response to the knee jerks; Lowenburg's symptom was absent and there was no history of gastric crises or sphincter involvement. Two years ago he first noticed a peculiar gnawing sensation over the right eye, extending up over the forehead, with Argyll-Robertson pupil. The symptoms gradually disappeared, but on failure to keep up treatment returned. Lately he has noticed some slowness in voiding urine. His wife, who died eight years ago, was always healthy. One daughter has symptoms of inherited syphilis, and between the birth of this child and the preceding one there was a history of several miscarriages. There are no sensory changes.

DISCUSSION.

DR. C. W. LEFEVRE stated that the ocular symptoms of tabes were quite as varied as the general symptoms, and divided them into three classes: 1. Those in which there was atrophy of the optic nerve. 2. Those in which there was involvement of the external and internal muscles. 3. Those in which there was the Argyll-Robertson pupil. He stated that the symptoms were due principally to sclerosis of the spinal cord, especially the superior cervical region.

DR. J. W. MCCONNELL viewed the case as one of pseudotabes.

DR. WENDELL REBER did not view this case as one of true tabes.

DR. GILLESPIE stated that the pupil did not resemble the Argyll-Robertson pupil.

DR. L. C. PETER referred to an epileptic condition which in the beginning resembles true tabes, and stated that he believed there was no doubt that this case was one of pseudotabicular syphilis.

Headache as a Symptom.

DR. WILLIAM CLIFTON DREIN considered the subject under the headings of intracranial and extracranial headaches. Under the first classification he considered (a) anemic headaches, with vertical pain, usually less marked when patient is reclining, pale face and eyegrounds, disturbed sleep, drowsiness, reduced heart's action and, in extreme cases, edema of the ankles. Two symptoms of diagnostic importance are feeble pulsation of the carotids and drooping of the eyelids. This form exists in general anemia, chlorosis and all forms of debility. (b) Hyperemic headaches, in which the pain is usually of a throbbing nature, with fullness of the head, flushed face, injected eyegrounds, irritability, sensory disturbances and increased heart's action. They exist in any condition that causes a rise of arterial tension, such as exposure to the sun, prolonged mental work, fever, excessive venery, etc. (c) Nervous or cerebral headaches, which resemble both the others, but differ from them in the fact that the circulatory disturbances are secondary to morbid changes in the brain substance; among the symptoms are malaise, irritability, digestive and visual disturbances, nausea, confusion of ideas and vertigo. (d) Toxic headaches due to poisons taken into the system from without, as lead, alcohol, etc., and poisons produced by the morbid process within the organism, as the headache of nephritis. The pain usually bears a direct relation to the amount of poison, the faculties of the mind are usually more or less affected, varying from a slight heaviness to delirium. Under the second subdivision he considered the headaches due to constipation, typhoid and cerebrospinal fevers, gout, diabetes, jaundice and syphilis. (e) Sympathetic headaches caused by ovarian and uterine disorders, hemorrhoids, decayed teeth, eye strain, nasal catarrh, intestinal parasites, slight digestive disturbances, biliousness, etc. (f) Headaches due to organic brain disease, in which the pain is usually circumscribed and accompanied by disturbances of sensation and motion, visual and mental impairment and vertigo, and headache with vomiting of a projectile character, in the absence of gastric disturbance, is strong presumptive evidence of organic brain disease. The most common lesions are arterial disease, syphilitic and other varieties of tumor, tuberculosis, cerebral softening, hydatids, meningitis and osseous formations within the cranial vault. Under the head of extracranial headaches he discussed: (a) Neuralgia, trigeminal and cervico-occipital, caused by heredity, wasting diseases, malnutrition, exposure, poor hygienic conditions, rheumatism, gout, diabetes, anemia, chronic malaria, acute infectious diseases, etc., caries and periostitis of nerve foramina, rheumatic influences affecting the nerve fibers, foreign bodies and growths, congestive and inflammatory conditions of the nerve sheaths and reflex irritation. (b) Osteal and periosteal headaches due to the ostitis and periostitis of secondary syphilis.

Nasal Headache.

DR. LEWIS S. SOMERS considered neuralgia and cephalgia, and cited as the etiologic nasal factor, stenosis, either partial or complete, and acute or chronic sinusitis. He emphasized the importance of examination of the nose in cases of intractable headache, and stated that if the condition was relieved by the discharge of pus or mucus from the nose it was strong presumptive evidence of sinus involvement. The location of the pain is more frequently frontal than in any other position; the headache is not limited to any particular variety, and the seat of the pain is inconstant as regards the relative position of the disease and the pain, although the original seat of the pain is usually continued in the individual case. The intensity of the pain varies both as regards the individual and the periodicity, and if it is worse when there is increased purulent nasal discharge, should arouse suspicion in that direction. The pain is more likely, however, to be influenced by extraneous causes, such as irregular living, menstruation, etc. He considered in detail the causative factors of nerve pressure, stenosis, chronic obstruction due to foreign bodies, rhinoliths, tumors and hypertrophy of the turbinals, bending of the septum, vasomotor alterations, epistaxis, sinus involvement (on which he stated the great majority of nasal headaches are dependent) including empyema of the maxillary antrum, frontal sinus involvement, ethmoid disease and sphenoidal sinusitis, giving in detail the character and location of the pain in each of the several conditions. When sinusitis is the cause of the

headache more than one cavity is apt to be involved and, therefore, if cephalgia or neuralgia be present, they are apt to be confusing, giving little indication of the site of the morbid process, and that other local or general facts must be eliminated before the nose can be shown to have a direct relation to the headache, and that one may have nasal disease with or without suppuration in the presence of continuous or intermittent headache and yet there be no relation at all between the two.

Ocular Headache.

DR. WENDELL REBER referred to the frequency of headache and the fact that in many instances the victims thereof finally gave themselves up to the idea that nothing could be done for it. He referred to the classification of headaches by Leszynsky: 1, toxemic; 2, neuropathic; 3, reflex; 4, circulatory; 5, migraine, the ocular headaches falling under the third class. He described the supraorbital headache, and mentioned as causes thereof, anxiety, care, worry or excitement, the headache in some instances not appearing until the following day. He referred to the observations of de Schweinitz that 60 per cent. of the headaches due to errors of refraction are caused by astigmatism with other forms of ametropia, and stated that in his experience the sites of pain occurred with the following relative frequency: 1, Supraorbital; 2, deep orbital; 3, fronto-occipital; 4, temporal. In many instances there were no evidences of changes in the gross appearance of the eyes, and the lesser errors of refraction produced the worse headaches. The individuality of the patient and the character of the work done by him has much to do with the character and severity of the symptoms.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held February 28, 1905,

The President, DR. DUDLEY TAIT, in the Chair.

Tuberculosis of a Metacarpal Bone.

DR. DUDLEY TAIT exhibited a patient who had had tuberculosis of the metacarpal bone of the index finger, the nature of which had been demonstrated before operation by means of the *x*-ray. The diseased bone was excised and a pice of the radius was transplanted to take its place. The disease has been eradicated, and the functional result is fair, the main trouble being that the graft is already somewhat too short and seems to be shortening still more.

Demonstration of X-Ray Plates.

DR. LEHMANN exhibited a number of *x*-ray plates, showing a tumor in the brain; several small, dense, sharply outlined spots in the lungs believed to be caused by lung stones; a number of bronchiectatic cavities in the lungs of a child.

Two Unusual Cases of Gastric Carcinoma.

DR. W. F. CHENEY reported two cases of gastric carcinoma, which produced no symptoms referable to the stomach. In the one, a large nodular liver gave rise to the suspicion that the patient had syphilis and, later, to the diagnosis of carcinoma of the liver. In the other, a large tender mass in the region of the spleen proved, at autopsy, to be a perigastric abscess. Neither patient had any symptom referable directly to the stomach. In both cases the carcinoma was situated in the fundus.

DRS. GEO. GROSS and C. M. COOPER referred to the test for occult blood in the stools as one which might have been of value in these cases.

DR. J. H. BARBAT recommended early operation on cases in which even a fair suspicion of carcinoma of the stomach is present.

DR. A. W. HEWLETT suggested that the reason that so few gastric symptoms were present in these cases was that the carcinomata had not produced an obstruction. Occult bleedings may occur, not only from carcinomata, but from ulcers of the stomach or intestines and even apparently from dilated stomachs.

DR. CHENEY stated that the blood may come from the food eaten. An exploratory operation should be done whenever a fair suspicion of carcinoma exists.

Bicornate Uterus.

DR. GEO. SOMERS reported two cases of bicornate uterus. In one the condition was suspected from the fact that on curettement the instrument passed into two distinct sacs at the apex of the uterus. Removal of the uterus for disease of the appendages confirmed this suspicion. In the second case, the diagnosis of myomata was made and operations showed two uterine bodies united below into one cervix. The history of this patient is of interest, firstly, because she menstruated about twice a month ever since the birth of her first child; and secondly, because the second pregnancy seemed to be different from the first. The uterus is enlarged distinctly to the left side, the patient suffered from considerable pain, and the pregnancy was terminated by a still-birth at term. Apparently the right uterus was impregnated in the case of the first child and the left in the case of the second.

Intestinal Obstruction from Meckel's Diverticulum.

DR. EMMET RIXFORD demonstrated a Meckel's diverticulum which had been the cause of an intestinal obstruction in a child. The diverticulum had attached to it a piece of fibrous tissue resembling a mesentery.

CLEVELAND ACADEMY OF MEDICINE.

CLINICAL AND PATHOLOGICAL SECTION.

Twenty-third Regular Meeting, held March 3, 1905.

DR. W. E. LOWER, Chairman, Presiding.

Congenital Hepatoptosis.

DRS. T. W. CLARKE and D. H. DOLLEY cited the case of a woman, aged 35, who was admitted to the Lakeside Hospital for acute articular rheumatism. On examination a mass was made out on the right side, and was considered to be a hepatoptosis. The rheumatism improved, but the patient developed acute appendicitis, with ulceration, and died of general peritonitis. At the autopsy, ulcers, probably syphilitic, were found in the large intestine. The liver consisted of two lobes entirely separated, except for a thick fibrous band from which the lower lobe was suspended. This lobe possessed absolutely no other ligamentous attachment. The coronary and lateral ligaments were absent. In their place were reflections from the upper margin of the upper lobe, which in the normal liver would be the left lobe, running over to the diaphragm and forming a distinct meso-hepar. The suspensory ligament was attached along the left margin of the left lobe and to the interlobar ligament, as the authors named the band of fibrous tissue between the lobes, and this interlobar ligament was also joined by the round ligament. The fissure of the vena cava was situated in the upper posterior margin of the inner side of the upper lobe, instead of being on the right or lower lobe. The umbilical fissure and that of the ductus venosus were lost in the separation of the lobes. The gall-bladder fissure and the transverse fissure were present, but not in their normal positions. The quadrate lobe was represented, but the caudate and the Spigelian lobes were absent. The upper lobe contained multiple small gummata in its center, and there was a moderate grade of syphilitic cirrhosis. The liver was completely displaced from its normal position, so that the part which should be the right lobe, lying under the diaphragm, was the lowest portion, and hung from the left lobe, which took approximately the place of the right. The marked abnormalities in the positions of the fissures and the ligaments are such that the condition could not have resulted from the ordinary causes of splanchnoptosis, which were absent.

Ectopic Pregnancy of Ten Months' Duration.

DR. F. E. BUNTS' patient, aged 31, had had a normal pregnancy in 1891, and no history of abortion at any time; last menstrual period, March 4, 1904. She developed chronic endometritis, and on May 16, abortion threatening, a curettage was done. No fetus was found, but some placental tissue. May 30 a tumor was felt, and on August 10 fetal movements were felt. September 27 pain was felt in the abdomen, and

December 4 hemorrhage began which lasted four days. January 17 the patient felt pain which was referred to the uterus, and it is supposed that fetal life ceased on this day. On account of the tumor at the side a diagnosis of fibroid was made and an operation was performed on February 21. A large cyst, resembling a dermoid, was found adherent to the uterus and to the intestines. On opening the cyst a seven months fetus was found enclosed in a sort of cyst wall resembling broad ligament rather than tube or ovary.

Cysts of the Small Intestine.

DR. E. M. GOODWIN'S patient, a girl of 21, had had cirrhosis of the liver for some time, and had had repeated tappings. The cysts were of the size of an orange and had a wall of peritoneum. Interesting cases were also presented by Drs. Corlett, Dittrick and Herrick. Dr. Feiss read a paper on "Limitations in the Interpretations of Radiograms."

EXPERIMENTAL MEDICINE SECTION.

Seventeenth Regular Meeting, held March 10, 1905.

DR. H. C. BLISS in the Chair.

Observations on the Digestive Power of Pepsin.

DR. P. W. COBB said that the activity of a pepsin solution (other conditions being equal) is proportional to the square root of the amount of pepsin present. This holds in the case of Mill's method, unless the pepsin concentration exceeds that required to digest 4 mm., or slightly less, of egg white in twenty-four hours, as may be shown by the use of pepsin solutions of known relative strengths. As the pepsin concentration exceeds this limit, the actual amount of digestion falls further and further short of the calculated amount.

This deficiency is far too great to be explained by the difficulty of diffusion of the solution in and out of the narrow (2 mm.) tubes which are used in the experiments, or by the exhaustion of the solution during the progress of the test. The question of the presence of inhibiting substances in the (commercial) pepsin used was considered in these experiments. By careful dialysis Dr. Cobb found that the digestive power of a very strong pepsin solution is increased two and a half times. This power is also increased by dilution with hydrochloric acid, but not to the same extent as by dialysis. The albumin froth method of pepsin estimation failed to give such results as claimed for by its authors. The relation of pepsin activity and hydrochloric acid concentration was investigated by means of Mill's method. It was found that for commercial hog's pepsin the maximum activity was shown when the hydrochloric acid was present to the extent of 0.25 to 0.3 per cent. The conclusion reached is that no estimation of the pepsin values, either absolute or comparative, can be reached until the possibility of the presence of inhibiting substances is completely excluded.

Contributions to the Study of Experimental Diabetes.

DR. MACLEOD stated that in order to determine whether atropin would prevent puncture diabetes, a rabbit was placed under the influence of the drug, and the fourth ventricle was punctured. No glycosuria followed until after three hours, when the atropin effect passed off, and sugar to the amount of 1 per cent. appeared in the urine. Re-administration of atropin caused the sugar to disappear. Further evidence of a mechanism independent of vasomotor changes in the liver was furnished by the fact that glycosuria follows stimulation of the central end of the cardiac depressor nerve. Since the glycogenic impulses may form connections in the sympathetic ganglia, it was thought possible that nicotin would also inhibit glycosuria by puncture. This was found to be the case, nicotinized rabbits not exhibiting any glycosuria when punctured. The action of the atropin and the nicotin was also studied on dogs rendered glycosuric by stimulation of the central end of the vagus, but neither drug was found to have any influence. It was further found that a marked fall of blood pressure such as that produced by extensive hemorrhage, also causes disappearance or, at least, a marked diminution of the glycosuria produced by stimulation of the central end of the vagus, in dogs and rabbits.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Typhoid Fever.

Thomson, in an article in *Med. News* (abstracted in THE JOURNAL, April 8, p. 1147), on typhoid fever and its management, recommends early attention to the state of the kidneys by the administration of a reliable diuretic, and for this purpose he advises hot normal saline solutions per rectum twice a day. He uses four gallons of the solution at a temperature of from 115 to 120 F., with a return flow instrument. By this method the course of the fever, according to his comparative statistics, has changed for the better. In some cases acute nephritis develops comparatively early and constitutes a serious complication with uremic coma, therefore the kidneys must be carefully watched and such remedies administered as may be necessary.

In the first stage of the fever intestinal disinfection is necessary and a calomel purge should be given every other night until the middle of the third week, combined as follows:

℞. Hydrarg. chloridi mitis.....gr. v | 30
Pulv. jalapæ co.....gr. xxxv | 2 | 30

M. Ft. pulvis No. i. Sig.: One such powder every other night as a disinfectant.

The foregoing, according to the author, promptly checks diarrhea and lowers the temperature in the first week, often from one to three degrees. It also promotes renal elimination. After the middle of the third week it should be omitted owing to the risk of hemorrhage.

FEEDING.

The starvation plan is a preposterous one, according to Thomson, and the nutrition of the muscular system should be maintained in the best state possible, as that includes nutrition of the heart, on which so much depends. The peptic power of the stomach is decreased to a greater extent than in almost any other disease, including even carcinoma, according to the experiments of Fenwick, who found in some cases postmortem not a trace of pepsin. The only food, therefore, is a liquid diet, and milk is the best, diluted one-half with lime water, with the addition of sodium chlorid. Lime water is an antiseptic and counteracts the tympanites. Besides lime water the author recommends scale pepsin in five-grain doses (.30), or saccharated pepsin in ten-grain doses (.65), every three hours for twenty-four hours, which is certainly of great value in keeping up the nutrition of the patient.

The systematic employment of intestinal antiseptics is of great importance. Bismuth is the most serviceable of these disinfectants, as it is non-irritating and has local sedative properties which can not be said of the other preparations such as salol. From ten to twenty grains of the subcarbonate of bismuth combined with the pepsin is the best method of administration given every three hours, or from 80 to 160 grains (5.30-10.65) daily. If tympanites is persistent, the sulphocarbolate of soda may be added in five-grain (.30) doses.

When the first sign of dryness at the tip of the tongue appears, the oil of turpentine in from 15 to 20 minim doses (1-1.30) is also given in mucilage every three hours till the tongue is moist again.

Alcohol is recommended in the form of whisky for cardiac weakness. The author objects to repeated small doses, such as half an ounce, but prefers an ounce at a time, repeated every three hours and given in milk. In the beginning alcohol should be given only after midnight; later, in the evening, and still later on, as the disease progresses, in the afternoon, and recommends that it be omitted in the forenoon. It is only a temporary stimulant for prostration, consequently he recommends the large doses to produce the required amount of stimulation. Strychnin, when given as a routine and persist-

ent cardiac stimulant, produces harm, and it is well to stop its use every few days to note its effect on the heart's action. In marked cardiac debility the following combination is recommended:

℞. Strych. sulph.....gr. ss 2
Caffeinæ citratis.....gr. xxxvi 2 | 65
Sparteinæ sulph.....gr. xv 1
Ext. taraxaci q. s.

M. Ft. pil. No. xx. Sig.: One pill every three hours.

The most certain of all cardiac stimulants, according to the author's experience, is camphor given hypodermically in doses of seven and a half grains each (.50) combined as follows:

℞. Camphoræ .....gr. viiss | 50
Olei amygdalæ (sterile).....m. xx 1 | 30

M. Sig.: To be used subcutaneously at one dose and repeated once an hour to once in three hours, as may be indicated.

He recommends the Brand bath at a temperature of 70 F. as the best means of promoting elimination by the kidneys. The patient should be placed in the bath when the temperature reaches 102.5 F. and allowed to remain according to its effects. If the temperature drops from one to two degrees while in the bath he should be taken out, although he has been in the bath only five minutes. It should never be allowed to drop to 100 F., as it continues to fall after he is removed from the bath. On the other hand, if the temperature should rise instead of falling, after he has been in the bath for ten minutes, he should be allowed to remain in the bath until it begins to fall, though it may require half an hour to do so. Severe shivering should not be given any attention, and a good remedy to shorten this condition after the bath is a teaspoonful (4.00) of Hoffman's anodyne combined as follows:

℞. Spts. etheris co.....℥i 4
Aq. camphoræ .....℥i 30

M. Sig.: At one dose immediately after removal from the bath.

Some patients can not take cold baths on account of the pulse remaining weaker after the effects of the bath have been recovered from, than before it was taken. In such cases a warm bath from 95 to 98 F. is recommended if it will reduce the temperature; if not, the cold bath must be given fearlessly. He states that he has seen more bad results from timidity in using cold baths than from their excessive use. The only non-indication for Brand's method is the occurrence of intestinal hemorrhage.

With the first sign of intestinal hemorrhage the following is recommended:

℞. Argenti nitratis .....gr. v | 30
Pulv. opii.....gr. v | 30
Terebinthinæ resinæ .....℥iii 12
Liq. kali .....℥i 4

M. Ft. pil. No. lx. Sig.: Three pills at one dose.

The object of the turpentine in the foregoing combination is to prevent the absorption of the silver salt until the pill reaches the intestine. The author believes that these pills are of service both in checking hemorrhage and in preventing perforation. After the hemorrhage has been checked for thirty-six hours the baths should be resumed.

In the third and fourth weeks the patients complain of aching over the body due to the absorption of the subcutaneous fat leaving the nerves more exposed to pressure. This aching is best relieved by spreading sheepskins with wool on them, or buffalo robes, on the bed and over that a sheet, for the patient to lie on.

As a mollifacient the author recommends the following combination as a liniment:

℞. Ol. cinnamomi .....℥i 4
Aq. calcis .....Oi 500

M. Sig.: Apply locally after warming the solution.

The foregoing should be applied once daily, and if applied to the back twice daily it is of service in preventing the development of bedsores.

The dangers to be looked for after the patient has reached the middle of the second week are: 1, Death due to continued hyperpyrexia; 2, tympanites, with or without diarrhea; 3, severe toxemia, with prostration, low fever, feeble heart, etc.

In the first instance the patient should be dealt with just as in cases of sunstroke, by keeping him in an ice bath for 15, 30, 40 or 48 minutes. The second tendency (tympanites) would indicate about one-half the average amount of milk and smaller quantities at a time. Five grains resorcin (1.30) given in an ounce of sweetened water three times a day, with the dose of bismuth doubled and in some cases with the addition of sodium sulphocarbolate five grains (.30) is advised. In the third case the following combination is of service:

℞. Tinct. ferri chloridi.....m. xx 1 | 30

Sig.: To be taken at one dose, and repeated four times a day. And:

℞. Quin. sulph.....gr. iii | 20
Calcii sulphidi.....gr. 1/6 | 01

M. Sig.: One such dose four times a day along with the iron. Camphor should be used as a cardiac stimulant.

Simple Sycosis.

Hall, in an abstract in *Ther. Gaz.*, recommends, as the best treatment close shaving daily and has obtained great success by this method; it must be kept up for several months. After a short time the patient will overcome the difficulty of shaving over the sore patches. Very hot water, prolonged lathering and previous oiling of the face helps to soften the beard. A boracic acid lint fomentation should be applied over the whole chin and cheek, covered with gutta-percha tissue and kept in place by means of a handkerchief carried around and tied at the top of the head and so worn at night. In the daytime the following should be applied:

℞.. Zinci oxidi .....℥i 30
Glycerini .....℥ii 8
Lotio plumbi .....℥ss 15
Aquæ rosæ q. s. ad.....℥iv 120

M. Ft. lotio. Sig.: Apply locally after shaving.

By means of the foregoing treatment, according to the author, the face soon becomes sightly and speedy improvement will take place. The only drawback is the slothfulness of the patient in his daily attentions and daily close shaving.

Menstrual Pain of Virgins.

In the treatment of menorrhagia in virgins the *Ther. Rev.* recommends fifteen minims (1.00) of the fluid extract of senecio in a hot infusion of lemons. As soon as the menstrual period appears the patient is put to bed, poultices containing laudanum applied to the abdomen, and suppositories containing the following inserted:

℞. Ext. cannabis indicæ
Ext. belladonnæ, āā.....gr. 1/15 | 004
Olei theobrom. q. s.

M. Ft. suppos. No. i. Sig.: One such suppository inserted as often as necessary.

As a substitute for the foregoing suppository enemata containing laudanum are recommended, or the following:

℞. Tinct. viburni prunifolii
Tinct. piscidiæ erythrinæ, āā.....gtt. x | 65

M. Sig.: To be taken at one dose in a hot infusion.

For the accompanying lumbar pains the following ointment is recommended:

℞. Spts. chloroformi .....℥iiss 10
Olei moschi
Essentiæ caryophylli, āā.....℥i 4
Spts. etheris .....℥iv 15
Alcoholis .....℥iii 90

M. Sig.: To be applied locally to the lumbar region with thorough friction.

Medicolegal

Giving Eddyite Treatment Is Practice of Medicine.

The Supreme Court of Ohio holds, in State of Ohio vs. Marble, that the giving of "Christian Science" treatment. for a fee. for the cure of disease is practicing medicine within the meaning of the statute regulating such practice in this state. The statute making it a misdemeanor to give such treat-

ment for a fee is not an interference with the rights of conscience and of worship, conserved by section 7 of the bill of rights, and is not on that ground unconstitutional. Legislation prohibiting any one from treating a disease for a fee, excepting such persons as have qualifications, is a valid exercise of the police power of the state, and is constitutional. The act regulating the practice of medicine in this state exacts reasonable qualifications and excludes no one possessing them, and it is not void as discriminating against Eddyites in that it prescribes that any one possessing certain qualifications may practice osteopathy and does not make especial provision for those who wish to practice Eddyism.

The court says that the right to practice medicine has been so long and so universally subject to state regulation that it might almost be said to be not an absolute right, but a privilege or franchise. Assuming, however, that it is an absolute right, it was conceded to be subject to such reasonable regulations or conditions as the state in the exercise of the police power may prescribe. The Ohio statute provides that "Any person shall be regarded as practicing medicine or surgery or midwifery within the meaning of this act, who shall use the words or letters 'Dr.,' 'Doctor,' 'Professor,' 'M.D.,' 'M.B.,' or any other title, in connection with his name, which in any way represents him as engaged in the practice of medicine or surgery or midwifery, in any of its branches, or, who shall prescribe, or who shall recommend for a fee for like use any drug or medicine, appliance, application, operation or treatment, of whatever nature, for the cure or relief of any wound, fracture or bodily injury, infirmity or disease." It was contended that the word "treatment" was to be given its meaning as used in the practice of medicine and that as so read it means the application of remedies to the curing of disease, that a remedy is a medicine or application or process; that process is an action or operation and that prayer for the recovery of the sick is neither. Technically this may be correct but the science of medicine has made some advance since the time Macbeth wished to throw physic to the dogs because his doctor could not cure a mind diseased but told him "Therein the patient must minister to himself." Nowadays physicians cure imaginary diseases by means that would as easily as Eddyism escape the above definition. What Eddyism is we do not know. The practice of it is referred to as treatment by its followers. If its followers call it treatment they ought not to be heard to say it is not. Dr. O. W. Holmes (Med. Ess.) says: "Disease is to be treated by anything that is proved to cure it." The statute of 1896 had been held in this court not to comprise the practice of osteopathy and by a lower court not to apply to Eddyism. So that the use of the words "of whatever nature" in the amendment are quite significant and this court has no doubt the legislative intent was to bring within this definition every person who for a fee prescribed or recommended a cure for disease even though the cure was to come not from himself but, through his intercedence, from God. The next contention was that the statute interfered with the defendant's right to worship God according to the dictates of his conscience. The Supreme Court says it is to be observed that the statute does not prohibit the prescribing or recommending the treatment except for a fee and the court is not advised that it is a part of the defendant's religion to exact a fee as well as to pray. But if the inhibition of the statute tends to the public welfare and is not obnoxious on other grounds it is not within the provision of section 7 of the bill of rights that "All men have a natural and indefeasible right to worship Almighty God according to the dictates of their own conscience . . . nor shall any interference with the rights of conscience be permitted."

Taking up the question of whether the act, in so far as its application to Eddyism is concerned, is a valid exercise of the police power, the court says that the practice of medicine may be regulated by legislation has been decided in every court in which the question has arisen. But it is said that the offering of prayer to God for the recovery of the sick is not against public health or public morals or public safety or public welfare. Admitted. But is that a correct statement of the case? If the defendant prayed for the recovery of Hehl that was the treatment he gave him for the cure of his rheumatism and for which Hehl paid him. He was practicing healing or curing disease. To assume that legislation may be directed only against the administering of drugs or the use of the knife is to take a too narrow view. The subject of the legislation is not medicine and surgery. It is the public health or the practice of healing. The state might make it an offense, as has been done in New York, for any one to omit to furnish medical attendance to those dependant on him, and at the same time leave him his liberty to die in any manner he may choose. But this is not all. While the state may not deem it wise to go to the extent of requiring the individual to avail himself of the services of a physician yet it may not wish to hasten his death and so to transfer to itself the burden of supporting those dependent on him by making it possible for him to employ an empiric.

Again, where there is an infectious or contagious disease and the public welfare may be vitally affected by a failure promptly to recognize it, and so the state is interested in permitting to practice the art of healing only those possessing recognized qualifications. So that, regarding disease rather than the treatment of it as the subject of the legislation, it is not necessary that the statute be preventive of particular practices, but it may make the right to undertake the treatment of disease dependent upon the possession of reasonable qualifications. Then it was contended that Eddyism is a recognized system or school of healing, and that the statute is unconstitutional, on the ground that it discriminates against Eddyism, or in favor of certain schools of medicine. The court says that if it is correct in the conclusion that disease and not the method of its treatment, is the subject of the legislation, then it is putting the cart before the horse to say that every school of healing must be recognized. That the legislature, in its wisdom, might prescribe a uniform examination the court does not doubt, and that it may recognize one school without recognizing all, is also true, if the recognition be in the exercise of proper classification and for the public welfare, and not with a view to create a monopoly in the schools recognized or a discrimination against other schools. The court fails to find anything in the present act that discriminates against Eddyism. It does not provide for a special examination and limited certificate for the Eddyite practitioner, but he may obtain a certificate to practice medicine upon the same conditions as any other person and there is nothing in the act requiring him to use the knowledge after he acquires it. To admit that a practitioner may determine what treatment he will give for the cure of disease and that the state may examine him only respecting such treatment would be to defeat the purpose of the statute and to make effective legislation of this character impossible. If the present statute is too comprehensive the remedy is with the legislature. The conclusion reached is supported by State of Nebraska v. Buswell, 40 Neb. 158, and the following recent decisions throw more or less light on such legislation: The People v. Blue Mountain Joe, 129 Ill. 37L; Williams v. The People, 121 Ill. 84; The People v. Gordon, 194 Ill. 560; Bragg v. The State, 134 Ala. 165; The State of Iowa v. Barr, 112 Iowa, 466; The State of Kansas v. Wilcox, 66 Kan. 711; State of Maine v. Bohemier, 96 Me., 257; People V. Reetz, 127 Mich., 87; State v. Biggs, 133 N. C., 729; 98 Am. St. 731, monographic note. State v. Heath, 101 N. W. 429.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

April 1.

1 Relation of the Nervous System to Visceral and Trophic Phenomena. J. Fraenkel, New York.
2 *Perineum, Perineorrhaphy, and Prolapse. A. Sturmdorf, New York.
3 *Compound Traumatic Separation of the Lower Epiphysis of the Femur. G. G. Cottam, Rock Rapids, Iowa.
4 *Value of the Present Quantitative Tests for Hearing; with Demonstration of a New Apparatus. W. S. Bryant, New York.

5 *Rapid Bacteriologic Diagnosis of Diphtheria. H. A. Higley, Brooklyn.
6 *Best Method of Administering Potassium Iodid. M. Huehner, New York.
7 *New Remedy for Ulcerative Processes, Acute and Chronic, Including Pulmonary Tuberculosis. H. W. Mitchell, New York.

2. **Perineorrhaphy and Prolapse.**—To facilitate accurate readjustment of original anatomic relations, Sturmdorf advises the preliminary introduction of guide sutures. At some convenient moment prior to the descent of the fetal presenting part from two to three silkworm sutures are introduced under proper precautions into the structures between vagina and rectum, from the cutaneous base of the perineum to its apex. The lowest suture running on a line with the anterior anal margin serves to locate the several sphincteral ends; the median suture embraces the levator fibers, while the upper one tends to coaptate the vaginal lesion. In passing these preliminary sutures neither the vaginal nor the rectal walls should be punctured. In late operations the surgical objective point is the broad anterior loop of the levator ani, which, springing from the posterior surface of the pubic rami, passes downward and embraces the lateral and posterior wall of the vagina. Under all conditions of perineal rupture the pubic attachments of this levator loop present permanent palpable ridges. With these ridges serving as guides to the muscle, the postero-lateral muco-cutaneous junction of the vagina is severed and the deep seat of lesion exposed by carefully raising the cicatrized vaginal openings. Utilizable remnants of the levator muscle can thus be readily located, and after isolation and trimming, should be coaptated by buried end-to-end suture. Having secured muscular readjustment, the raised vaginal flap is allowed to settle into position, and then only should such of its redundant tissue be sacrificed as may not be utilized in restoring the contours and bulk of the vagina and perineum. Trimming and suturing should be limited as far as possible to the cicatrices and lateral sulci, preserving the median aspects of the vaginal walls as much as possible.

3. **Traumatic Separation of Lower Epiphysis of Femur.**—Two cases of this kind are reported by Cottam, occurring in children aged 6 and 5 years respectively. In both cases the lower epiphysis of the femur was torn off completely. In the first case it was necessary to resort to wiring; in the second case reduction and immobilization was sufficient. At the nineteenth week the joint function of the first patient was fully restored and the boy could walk and run without perceptible limp. At the present time there is slight knock-knee on the injured side owing to unequal growth of the inner and outer aspects of the shaft of the femur. The second case is too recent to permit of any final observations.

4. **Quantitative Tests for Hearing.**—A new accoumeter for making quantitative tests for hearing is described by Bryant. The machine allows the operator to determine accurately the limit at which the patient is able to hear with sufficient distinctness to repeat the words spoken into the machine. Distance is no longer needed for the voice tests. The accoumeter provides a sure method of detecting feigned deafness. It also gives a test for hyperacousis, and it also measures the psychologic factor in audition. Eyesight aids are eliminated. It furnishes a test which does not vary and which can be multiplied and repeated indefinitely.

5. **Bacteriologic Diagnosis of Diphtheria.**—A method of arriving at a rapid diagnosis of diphtheria by means of stained smears made directly from the false membrane present is described by Higley. The smears must be as thin as possible and must be thoroughly washed and dried between the applications of the stains used. The material for the smears is obtained by means of a strong wire-loop needle, the wire being flattened by filing so as to form a sort of curette. The smear is made in a drop of distilled water. Two stains are used. No. 1, 5 drops of Kuehne's carbolic methylene blue in 7 c.c. of water; No. 2, 10 drops of carbol-fuchsin in 7 c.c. of water. Fix the smear with the flame in the usual manner. Apply stain No. 1 for five seconds, wash with water and dry with filter paper. Apply stain No. 2 for one minute, wash, dry and mount in balsam. The stains must be absolutely fresh. The diphtheria bacilli, if present, appear as dark red or violet rods, irregularly stained, and often containing polar dots. The epithelial cells are stained a bright red. Other micro-organisms may appear of the same color as the diphtheria bacilli, but the unevenness of contour of the latter and its mode of division obviates confusion in diagnosis. When properly carried out the diagnosis can be made in fifteen minutes.

6. **How to Administer Potassium Iodid.**—Huehner says that the method of administering potassium iodid should differ in accordance with the purpose for which it is given. For therapeutic purposes potassium iodid should always be given in solution, well diluted, and, if possible, never on an empty stomach. Milk is the best diluent, but compound syrup of sarsaparilla, mineral water or ordinary pure water may be used. The drug must be pure. Many bad effects are due to impurities. By observing strict cleanliness of the skin, disagreeable skin eruptions to a large degree may be prevented. Where accurate dosage is of importance it is safer to prescribe a 50 per cent. solution, two drops to equal one grain of the drug. Potassium iodid should never be given in phthisis or when there is even a suspicion or tendency to phthisis. In children it is best to give the drug very frequently in small doses, one-fourth of a grain every hour, rather than infrequently in large doses. A very convenient way is to dissolve the daily dose to be taken in twenty-four teaspoonfuls of water and have the child take one teaspoonful every hour while awake, and two or three teaspoonfuls on awakening after a two or three hours' sleep. In this way a six-months-old child may take as much as 15 or 30 grains in twenty-four hours for a long time without inconvenience. Special plans of administration are described for syphilis, locomotor ataxia, chronic endarteritis, asthma, nephritis, lead poisoning, rheumatism, gout and neuralgia.

7. **New Remedy for Ulcerative Processes.**—The remedy advocated by Mitchell is a solution of chlorobromid of sodium prepared as follows: To a convenient quantity of water add 3 per cent. sodium chlorid, 0.1 per cent. bromin and 0.5 per cent. hydrochloric acid (C. P.). Subject this mixture to the action of an electrical current until such chemical action has taken place within the mixture as to convert all free bromin into a compound with the other elements present. The resulting fluid is pale amber in color, with a strong odor of chlorin, a slightly acid taste and a specific gravity of 1,022. It must be kept in amber colored bottles in a cool place and tightly corked. Mitchell has used this solution locally with very satisfactory results in chronic ulcers of the leg, regarded as hopeless, suppurative bubos which had resisted all other methods of treatment, and ulcerative cervical endometritis. He has also administered it by mouth in pulmonary tuberculosis. It seems to have the power to check ulcerative processes in the lung and, if the disease is not too far advanced, ultimately to effect a cure. It must be given in free doses for a considerable period of time, from one to one and a half ounces four times daily, before each meal and at bedtime, on a stomach which is completely empty. One hundred cases were treated in this way and the results were satisfactory.

New York Medical Journal.

April 1.

8 Concerning the New Electro-cystoscope. W. K. Otis, New York.
9 *Treatment of Acute Tuberculous Spondylitis in Infants and Young Children. D. D. Ashley, New York.
10 Recent Advances in Electro-therapeutics. W. J. Morton, New York.
11 Two Dipsomaniacs; Illustrating two Dipsomaniac Phases. T. H. Evans, Philadelphia.
12 *Management of Pneumonia in Infants and Children. C. G. Kerley, New York.
13 Influence of Infected Milk in the Diet of the Sick—Particularly in Acute Infectious Diseases. Report of a Series of Cases of Milk Infections in Typhoid Fever Patients. (Concluded.) D. L. Edsall, Philadelphia.
14 *Some Clinical Deductions from the Performance of Ninety Alexander Operations with Abbe's Modification. H. P. Epstein, Newark, N. J.
15 Cerebrospinal Meningitis in Cattle. P. Shekwana, Iowa City, Iowa.

9. **Acute Tuberculous Spondylitis.**—The method employed by Ashley differs in some particulars from any procedure heretofore described. The child is supported, face downward, in the horizontal position, the body at right angles to a table, the upper third of the thighs resting near the edge of the table. Extension is made on the head and arms, the arms at right angles to the body, and counterextension on the feet, always sufficient to overcome any sagging of the body in lordosis. The kyphosis is gently pressed downward until nearly or quite obliterated, no considerable force being employed. A snugly fitting stockinet shirt is then applied over a rubbing bandage; over this is adjusted a felt pad amout three inches wide, extending the length of the spine, and felt pads cover the anterior superior spine. These are secured by one layer of sheet-wadding bandage, and over all is applied a light, closely fitting plaster-of-paris jacket, extending from the top of the sternum to the symphysis pubes. The spine is held in superextension until the setting of the plaster by one hand pressing down on the region of the kyphosis and the other pressing upward on the upper part of the sternum, slightly flattening the thorax. The patient is then transferred to a Whitman frame, which is bent to conform to the plaster. The cast is trimmed like an ordinary jacket, except that it is left longer than usual in front, there being no intention that the child shall assume the sitting position. After the jacket is well hardened an oblong fenestra is cut out in front, extending from the center of the gladiolus to about two inches below the umbilicus. In case any considerable kyphosis has been reduced a small fenestra is cut out at the back over the knuckle If the kyphosis is high dorsal or cervical the plaster is extended to the head and adjusted well to the occiput, the neck being moderately superextended and the head secured in position by a coronal band. The patients are confined on the frame for from six to eight months, after which they assume a semi-sitting position by elevating the head of the frame. The plaster is changed at intervals of from three to four months, the skin being kept clean in the meantime by the rubbing cloth. Careful attention should be given to prevent any disturbance of digestion. Some of the advantages claimed for the use of the plaster-of-paris jacket and the modified Calot procedure are: 1. The deformity and spasm are immediately overcome and the spine is placed in the position which is most conducive to the healing process. 2. The spine is securely held in position, and there is no undue flattening of the pelvis. 3. The necessary handling of the child is done with the least possible disturbance to the spine. 4. It conserves the labors of the surgeon and permits the treatment of patients from a distance where frequent observation is impossible. 5. The capacity of the thorax is increased, and pressure on the vital organs is relieved. 6. Paraplegia, with hardly an exception, becomes less or entirely disappears. 7. In marked deformity, when the angle of flexion is so great as to render the supine position almost intolerable, the reduction of the kyphosis makes this position at once comfortable.

12. **Pneumonia in Infants.**—The first step advocated by Kerley is to establish a sickroom régime, avoiding extreme measures. Temperature is controlled by the use of a pack; the temperature of the water should be 90 F. As heart stimulants he uses strychnin and strophanthus, when they are indicated, in heart weakness. The application of counterirritants to the skin over the thorax is of service in cases in which there is evidence of much bronchial congestion and bronchial spasm. Kerley uses the old-fashioned mustard plaster, repeated every six hours, usually for the first forty-eight hours. After this time it is used less frequently or discontinued. Expectant drugs should be given with great care, and when used should be prescribed in tablet or powder form. For a child 1 year of age Kerley occasionally gives 1/100 grain of tartar emetic and 1/40 grain of ipecac after feeding. In case the cough is severe and teasing and not relieved by steam inhalations, a small quantity, ¼ to ½ grain of Dover's powder may be added to each dose. In the treatment of pneumonia in the young he says the degree of success is measured in large part by the physician's ability to adapt the child to the unusual conditions caused by the presence of the disease.

14. **Deductions from Ninety Abbe-Alexander Operations.**—Of a series of 90 patients operated on according to this procedure, Epstein has delivered 18 women without a relapse in any case. In 76 cases which he has had the opportunity of seeing no relapse has occurred. In 42 cases the operation was performed for simple retroversion. Curettage was supplemented for the attendant endometritis. In 20 cases retroversions were accompanied by prolapse in which, in addition to curettage, anterior and posterior colporrhaphy was added; in 8 cases excision of hemorrhoids was performed, and 4 divulsions for fissure in ano were done. In 4 cases considerable annoyance was caused by pain in the scars; 2 cases required the dissection of the genital branch of the genito-crural nerve, owing to its inclusion in the cicatrix; the other 2 cases responded to mild galvanism.

American Medicine, Philadelphia.

April 1.

16 *Treatment of Cerebrospinal Fever. C. G. Stockton, Buffalo.
17 *Dessertation on Temperament, Diathesis, Dyscrasia, Predisposition, Cachexia, Susceptibility, Idiosyncrasy and Heredity. (Concluded.) H. Wakefield, New York.
18 *Peritoneal Adhesions. C. Beck, New York City.
19 *Treatment of Hemoptysis. F. Hare, London.
20 Some Observations on the Treatment of Chronic Diseases. C. Pope, Louisville, Ky.
21 *An Interesting Tumor and Its Relations to Heredity. H. E. Radasch, Philadelphia.
22 Papillomas in Syphilitic Child, Occluding Both Nostrils. W. G. B. Harland, Philadelphia.

16. **Treatment of Cerebrospinal Fever.**—Stockton says that in the treatment of this affection the sanitarian is more useful than the therapeutist. Furthermore, the difference in virulence in different epidemics accounts for faulty notions arising as to the effects of measures of treatment. The most useful procedure is the bringing about of the best hygienic condition for the patient, such as: 1. Absolute quiet in a well ventilated, darkened room. 2. Giving the greatest attention to securing the proper performance of the various functions of the body. 3. The trial of the hot baths, after the method of Aufrecht, in all cases in which they seem to do good. 4. The practice of intraspinal puncture with drainage, when necessary, to relieve severe pressure symptoms, to be repeated, if needed, provided benefit follows the first puncture. 5. The use of antipyrin in cases in which the temperature is raised, not only for the relief of the pyrexia, but also for the mitigation of headache and hyperesthesia. In Stockton's experience the drug has also proved useful in improving the mental state, and it has not been followed by the expected depression. 6. The use of opium or of the bromids alone, or in combination with antipyrin, for the relief of convulsions, pain hyperesthesia, and the pressure symptoms generally, which are not relieved by other methods of treatment. 7. The use of mercury, when needed, for its laxative effect, or to assist in stimulating the organs of elimination.

17. **Temperament, Diathesis, Dycrasia, Etc.**—Wakefield reviews these various states and attempts to introduce, as a new conception of the involved problems, a definite and orderly biologic-retrogressive series of physical manifestations, constituting the symptomatologic expressions of the phases and stages of the pathology of catabolism, including an analysis of etiologic homogeneity. Clinical illustrations and quotations supplement his premises. He contends that protoplasm, both of unicellular life and of the parenchyma of the higher animals, obtains density in proportion to normal cell maturity and suffers expansion and elongation in ratio to its sub-catabolism. Susceptibility to parasitic infection is attributed to tissue atony and the morphologic changes of subcatabolism. Heredity he defines as substantially a congenital structural expression, and denies that diseases are specifically inherited.

18. **Peritoneal Adhesions.**—Beck shows that adhesions forming after repeated attacks of appendicitis and after operations on the abdominal or pelvic organs, may give rise to symptoms which may be mistaken for enteroptosis, pelvic neuralgia, or

even for ulcer and carcinoma of the stomach, or cholelithiasis. Sometimes differentiation is simply impossible. These adhesions form more frequently in the ileocecal region than elsewhere.

19.—See THE JOURNAL of Oct. 22, 1904, p. 1265.

21. **Tumor and Heredity.**—An interesting case is cited by Radasch. The patient, a girl, new-born, had a turnip-shaped growth at the second joint of each little finger connected to the skin by a short pedicle. A few days after birth one of these tumors was accidentally pulled off. Its stump bled freely, showing that the vascularity of the tumor was considerable. Investigation of the family history disclosed that the mother at birth possessed just two such tumors on the outer surface of each little finger at the second joint. Her mother at birth also possessed such tumors. The wall of the tumor was comparatively thick. The tumor mass was dark red and appeared to be attached to the wall at one point and was much smaller than the tumor itself. On microscopic examination the tumor was seen to consist of epidermis, derma and central connective tissue. For about two-fifths of the circumference of the growth the epidermis was detached and formed a wall. The central mass seemed to be made up from a large number of darkly staining fibers or bundles, resembling somewhat voluntary striated muscle. The tumor, from its position, seemed to resemble a supernumerary finger, but neither cartilage nor bone was found. The central mass of connective tissue, however, responded to both the Van Gieson and the elastica stain. The tumors were transmitted through the female side and to the female only.

Medical News, New York.

April 1.

23 *Coagulation of the Blood. L. Loeb, Philadelphia.
24 *Nephritis Complicating Mumps. J. A. Miller, New York.
25 Status of Suprarenal Therapy. S. Floersheim, New York.
26 "Specific Therapy of Tuberculosis." C. Denison, Denver.
27 *Intestinal Ileus with Strangulation. R. R. Huggins, Pittsburg.
28 Case of Large Parovarian Cyst, and Two Cases of Large Ovarian Cysts. F. C. Hammond, Philadelphia.

23. **Coagulation of the Blood.**—A review is presented by Loeb of the more recent investigations regarding the coagulation of the blood, with a consideration of what is usually termed the theory of the coagulation of the blood.

24. **Nephritis Complicating Mumps.**—According to Miller, acute nephritis complicating mumps may occur in either children or adults, and is much more frequent in males than in females. The parotitis is usually double and mild in character, and the nephritis is more liable to occur during early convalescence. Exposure to cold may be a predisposing factor. The nephritis is usually moderately severe, of less than one week's duration and ending in complete recovery. Rarely it may develop into chronic nephritis, or it may be so severe as to cause death. He advises that careful examination of the urine should be made and that strict precautions against exposure should be taken in all cases of mumps, both during the acute stage of the disease and during convalescence.

27. **Intestinal Ileus with Strangulation.**—Four cases are reported by Huggins to show the marked contrast in the result between early and delayed operative treatment. The two patients operated on made a rapid and uneventful recovery, whereas the two patients treated on the expectant plan succumbed.

Boston Medical and Surgical Journal.

March 23.

29 *Treatment of Appendicitis. Can We Wait for Localization when the General Peritoneal Cavity is Involved? C. A. Porter, Boston.
30 *Remarks on Appendicitis. M. H. Richardson, Boston.
31 *Some Observations on Appendicitis. R. H. Fitz, Boston.
32 *Choice of Method of Opening the Abdomen in Appendicitis. F. B. Harrington, Boston.
33 *Immediate Operation vs. Delay in Acute Appendicitis. G. W. W. Brewster, Boston.
34 Subphrenic Abscess as a Complication of Appendicitis. H. L. Burrell, Boston.
35 Bacteriology of General Peritonitis. T. J. Manahan, Boston.
36 Results of Operative Treatment of General Peritonitis Following Appendicitis at Massachusetts General Hospital During the Past Five Years. W. C. Quinby, Boston.
37 Results of Medical Treatment of Peptic Ulcer at the Boston City Hospital. G. G. Sears, Boston.
38 Angio-neurotic Edema: Report of a Case Operated on During an Abdominal Crisis. F. B. Harrington, Boston.
39 *Observations on Pneumonia with a Report of Two Fatal Cases of Extrapulmonary Suppuration. Suggestions for Treatment. D. E. Keefe, Springfield.
40 Eclampsia. W. R. Gilman, Worcester.

29. **Treatment of Appendicitis.**—Porter's paper may be summarized as follows: Purgatives should never be given in acute appendicitis before operation. Ochsner's treatment is the best to adopt from the onset of an attack, to carry out when operation is refused, and to employ after operation in almost all cases. Until the superiority of conservative treatment has been satisfactorily demonstrated immediate operation will be urged by the majority of surgeons in most cases of acute appendicitis in all stages. The present tendency of surgery is to become more and more conservative. Conservative treatment may be advised in certain cases of acute appendicitis in which the symptoms of rapid septic absorption are out of all proportion to the evidences of peritonitis. Also, when there is evidence of recent improvement, or the condition and surroundings of the patient are unfavorable for operation. Ochsner's treatment should be advised in most cases of spreading or diffuse peritonitis when a reasonably good surgeon can not be obtained. Irrigation of the general peritoneal cavity should not be undertaken unless the conditions are such that it can be thoroughly performed. It is indicated in recently diffused processes, particularly if the previously unirritated peritoneal cavity has been suddenly infected through rupture of an abscess. It may be used in some cases of spreading infections without adhesions, though local operation is probably preferable. After irrigation the danger of increased absorption is best prevented by a tube or cigarette drain to the bottom of the pelvis or, in women, vaginal drainage, with exaggerated Fowler's position for from twenty-four to thirty-six hours. The rapidity with which local operation with pelvic drainage and Fowler's position can be performed makes it the method of choice in very serious cases, in those with marked distension, and in operations outside of hospitals. Ochsner's routine, with turpentine stupes to the abdomen, is the best treatment for the first forty-eight hours after operation.

30. **Remarks on Appendicitis.**—Richardson considers the indications for operation, the cause of death, the objection to operative treatment and the remedy for the evils of indiscriminate operating by inexperienced men. In the past year out of 112 operations he had 3 deaths. Of the total number a large majority were interval operations in which he has had as yet no deaths, although the total number is nearly a thousand. His total mortality for the past year, between 500 and 600 operations of all kinds, was 17.

31. **Observations on Appendicitis.**—The question of immediate operation versus delay is answered by Fitz as follows: The physician is justified in delay until the conditions call for an immediate operation. These may be present at his first visit or may not appear until a later period. If, after twenty-four hours, there is no improvement, and especially if the fever increases, an immediate operation is preferable to further delay.

32. **Method of Opening Abdomen in Appendicitis.**—Harrington considers McBurney's gridiron incision ideal for a large majority of the interval operations. If more room is needed the incision may be enlarged, the so-called extended McBurney incision. In nearly every case of appendicitis Harrington makes it a rule to enter the free abdominal cavity beyond the appendix and the inflammatory mass in order to examine for secondary abscesses and to determine the condition of the rest of the abdomen. If the appendix mass extends beyond the semilunar line it is better to open the abdomen by a vertical incision through the rectus sheath and separate the rectus muscle or to retract it. If it extends to the middle line or beyond, Harrington opens in the middle line. The rectus incision for the interval operation is a good one, but has the objection that if drainage is found to be necessary the oblique and transversalis muscles, when they contract, tend to spread the opening in the rectus muscle and sheath.

33. **Immediate Operation vs. Delay in Acute Appendicitis.**—Basing his deductions on the experience derived from 240 operations, Brewster concludes that delay is indicated in mild cases in which there is no doubt about the recovery without operation, and that immediate operation is indicated in all other cases of acute appendicitis.

39. **Treatment of Pneumonia.**—Keefe describes a method of treatment of which he claims to be the originator. It is his custom in treating unilateral pneumonia to give virtually no medicine. The patient is instructed to lie on the side of the sound lung, thus favoring the emptying of the vessels of the lung by means of gravitation, while ice is applied to the affected side. The medicinal treatment, especially during the first stage, should consist of: 1, One active purge; 2, wet or dry cups or leeches; 3, free use, all over the affected lung, of as strong counterirritants as can be borne comfortably; 4, veratrum viride to bleed the lungs into the abdominal and general capillaries, or the direct abstraction of blood from a vein, followed, if necessary, by infusion. A few doses of morphin may be indispensable in pleuropneumonia. Plenty of fresh air should be admitted, but the body covering should be sufficient to promote perspiration and dilatation of the superficial capillaries. He does not use digitalis, ammonia or whisky in any stage of the disease.

Lancet-Clinic, Cincinnati.

April 1.

41 *Transverse Fascial Incision for Operations in the Pelvis. E. Ries, Chicago.
42 Electro-magnet in Ophthalmic Surgery. R. Sattler, Cincinnati.
43 Penetrating Wounds of Eyeball, with Presentation of Specimens. F. W. Lamb, Cincinnati.
44 Cancer of Rectum Treated by Sigmoido-proctectomy. G. W. Roberts, New York.
45 Recent Illustrative Experiences in Abdominal Surgery. C. A. L. Reed, Cincinnati.

41.—See abstract in THE JOURNAL of November 5, p. 1409.

St. Louis Medical Review.

March 25.

46 Appendicitis; Cancer of the Breast; Empyema. R. T. Morris, New York.
47 Two Cases of Lateral and Sigmoid Sinus Thrombosis, One with Jugular Exsection. Recovery Notwithstanding Meningeal Symptoms. C. Jackson, Pittsburg.
48 Rupture of Gall Bladder (Spontaneous and Traumatic; with and Without Operation); Historical Review of 273 Cases. (Continued.) B. M. Ricketts, Cincinnati.

American Journal of the Medical Sciences, Philadelphia.

April.

49 Syphilis of Lung. T. A. Claytor, Washington.
50 Some Aspects of the Theories of Immunity. B. H. Buxton, New York City.
51 Recurrent Oculomotor Palsy. W. G. Spiller and W. C. Posey, Philadelphia.
52 Myasthenia Gravis, with Paralysis Confined to the Ocular Muscles. W. G. Spiller, Philadelphia, and E. U. Buckman, Wilkesbarre.
53 Myasthenia Gravis; A Case Involving the Eyes Only. M. Frank, Chicago.
54 Myxedema Following Exophthalmic Goiter. N. B. Foster, New York.
55 Result of Removal of Spleen. J. W. Hunter, Jr., Norfolk, Va.
56 Advances in Technic of Roentgen-ray Therapy. C. L. Leonard, Philadelphia.
57 Universal Congenital Atrichia. A. A. Eshner, Philadelphia.
58 Primary Carcinoma of Omentum with Peritonitis Carcinomatosa. A. Sturmdorf, New York City.
59 Hypertrophy and Stenosis of Pylorus in Infants. F. L. Wachenheim, New York City.
60 Dermoid of the Female Urinary Bladder. J. Block and F. J. Hall, Kansas City, Mo.
61 Two Cases of Ulcerative Perforation of Rectum Originating from a Gonorrheal Salpingitis. J. Otradovec, Chicago.
62 *Dietetic Use of Predigested Legume Flour, Particularly in Atrophic Infants. D. L. Edsall and C. W. Miller, Philadelphia.
63 Poisoning by Potassium Cyanid; Three Cases. J. I. McKelway, Long Island.
64 Eventration of Diaphragm. J. Saller and R. D. Rhein, Philadelphia.

62. **Use of Predigested Legume Flour.**—According to Edsall and Miller, bean flour in which the starch is predigested by means of a diastatic ferment seems to be well digested and absorbed by infants and adults. An extremely concentrated food may be given in this way in fluid and partially digested form; a 20 per cent. solution, although fluid, is practically equivalent to beefsteak in nutritive value. Its influence on the digestive tract of infants in the cases studied was usually distinctly favorable, and its influence on metabolism both in infants and adults is, at least, equal to that of milk. Of fifteen infants treated one did not gain; one gained rapidly, but had an intercurrent illness and the flour was stopped; one gained nine ounces and then almost ceased to gain. The others gained as follows: One, fifteen ounces in six days; one, thirteen ounces in six days, both continuing after the bean flour gave out; one, one and a half pounds in sixteen days; one, one and a half pounds in twenty-three days; one, one and a half pounds in seventeen days; one, over two pounds in four days, and, after readmission, twelve ounces in eleven days; one, one and a half pounds in twenty days; one, twelve ounces in eleven days; one, four ounces in three days; one, one pound in seven days; one, one pound in eight days, and one, one and one-half pounds in three days. All these were atrophic infants that had previously been stationary or losing. A child of 2 years that had had persistent and very dangerous disturbance of digestion with advanced malnutrition improved immediately, the child repeatedly gaining over two pounds a week. One point that appears to be of some importance is that one can administer in this way as much as from 0.75 per cent. to 1 per cent. of proteid, a fact of decided consequence in cases in which it is difficult or impossible to administer a proper amount of milk proteid.

The Illinois Medical Journal, Springfield.

March.

65 Cure of Inguinal Hernia. M. L. Harris, Chicago.
66 Scrofulous Ulcers of the Legs. W. F. Somerville, Glasgow, Scotland.
67 Nervous Sequelæ of Influenza. J. Grinker, Chicago.
68 Epidemic Smallpox. J. J. Conner, Pana, Ill.
69 Hysteria and Neurasthenia; Diagnosis and Treatment. C. W. Rutherford, Newman.
70 Leucocytes and Their Diagnostic Significance. H. E. Monroe, Shelbyville, Ill.
71 *Accidental Perforation of Uterus. H. E. Cushing, Champaign.
72 Treatment for Fracture of Patella. M. R. Barker, Chicago.

72. **Fracture of Patella.**—Barker has devised a method for treating fracture of the patella which has proven satisfactory in 20 cases. Figure 1 shows the manner of application of the cast above the upper fragment. Beneath the roller bandage (b) next to the skin, is placed a layer of cotton wadding torn in strips and applied the same as a roller bandage. To the skin above the wadding the ends of adhesive strips are fastened, the other ends being brought over the wadding and fastened to the roller bandage. Another turn of the bandage covers the lower ends of the strip. Strips of adhesive plaster are thus worked into the bandage over the whole length of the

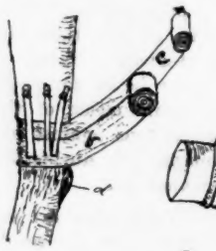

Fig. 1.

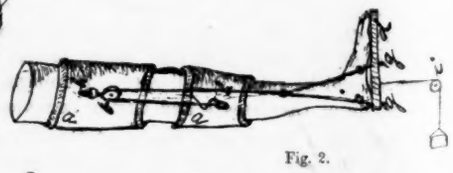

Fig. 2.

Fig. 1.—a. a. a. Adhesive strips. b. Cotton roller bandage. c. Cotton wadding bandage. d. Fractured patella.

Fig. 2.—a. a. Plaster casts. b. Pulley. h. Loops. d. Footrest and spreader. c. c. Ropes. g. g. Knots in ends of ropes. i. Pulley.

cast covering as much as possible of the quadriceps muscle. The plaster is applied over this foundation. As the plaster is applied two pieces of bandage are worked into the cast, one on each side of the leg, and brought out in loops as shown in in Figure 2. Two pulleys on each side of the leg are attached to the loops and thus fastened to the cast. A sash cord or small rope is fastened to the footrest, passed around the pulley b and fastened to the loop in the cast below the patella. The footrest is adjusted to the foot by the knots, and to it is attached a rope which passes over a pulley at the foot of the bed and which has attached to it a sufficient weight to

hold the fragments of the patella together. The cast below the patella is applied in the usual manner without the adhesive strips. The advantages claimed for this treatment by Barker are that a large portion of the quadriceps is grasped and firmly held by the adhesive strips worked into the cast, and when the cast is pulled down the upper fragment is brought down by pulling on the quadriceps rather than on the upper fragments, thus disturbance of circulation in the upper fragments is prevented. The lower casts hold the lower fragment firmly. The inconvenience of a long posterior splint is avoided and the patient is comfortable all the time and may be turned on his side. The apparatus is inexpensive and can be applied in a short time. The method does not take the place of the open method with sutures when that is indicated, but where the open method can not be used for any reason this one is the best.

Northwest Medicine, Seattle, Wash.

March.

73 Brain Cysts, with Report of Two Cases. W. House, Portland, Ore.

Iowa Medical Journal, Des Moines.

March 15.

74 Pleural Empyema. A. M. Pond, Webster City.
75 Some Advances in the Treatment of Urinary Diseases. G W. Jones, Keokuk.
76 Pneumonia. J. K. Milbourne, Clinton.
77 Cancers. G. G. Burdick, Chicago.
78 Case of Neurasthenia. F. S. Spearman, Whiting.

The Medical Sentinel, Portland, Ore.

March.

79 Concerning Genito-Urinary Tuberculosis; Report of Five Cases. G. S. Whiteside.
80 Should the Plea of Insanity Shield the Culprit in the Commission of Crime? J. L. Hill.
81 Henoch's Purpura. S. E. Josephi, Portland.
82 Treatment of Fractures. G. F. Wilson, Portland.

The Medical Herald, St. Joseph, Mo.

March.

83 Type of Operation in Gall-Bladder Disease. B. B. Davis, Omaha, Neb.
84 Control of Tuberculosis. H. M. Bracken, Minneapolis, Minn.
85 Nerve Injury Following Pressure and Mild Trauma. C. R. Whitney, Fonda, Iowa.
86 A Few Conditions of Importance Incident to Acute Phases of Insanity. J. M. Barstow, Council Bluffs, Iowa.
87 Observations on Surgery of Kidney. D. S. Fairchild, Clinton, Iowa.
88 Etiology and Treatment of Hypospadias. A. C. Stokes, Omaha, Neb.
89 Early Passive Motion and Massage in the Treatment of Fractures Involving Joints. F. H. Hornibrook, Cherokee, Iowa.

Woman's Medical Journal, Toledo, Ohio.

March.

90 Gastro-Enteric Infection. L. K. Hutchins, Freeport, Ill.
91 Diagnosis and Management of Transverse Presentation in the Later Months of Pregnancy. C. J. Baker, San Diego, Cal.

The Journal of Cutaneous Diseases, New York.

March.

92 Fordyce's Disease. C. J. White.
93 The Mould of Dermatitis Coccidioides. D. W. Montgomery.
94 Multiple Sebaceous Cysts: A Case. A. McPhedran, Toronto.

Cleveland Medical Journal.

March.

95 Clinical Report of Nine Cases of Diabetes Insipidus. T. B. Futcher, Baltimore.
96 Diagnosis and Treatment of Intestinal Perforations in Typhoid. R. H. Harte, Philadelphia.
97 The Typhoid Mortality of Cleveland for the Year 1904. G. W. Moorehouse.
98 Subcutaneous Injection of Paraffin in Facial Deformity and in Atrophic Rhinitis. S. H. Large, Cleveland.

Canada Lancet, Toronto.

March.

99 Sketch of the Beginning of Medical Education in York (Toronto). W. B. Geikie, Toronto.
100 Arthritis Deformans. F. W. E. Burnham, Winnipeg.
101 Progress of Medical Science During the Past 35 Years. W. H. Moorhouse, London, Ont.
102 Pharmacology—General Consideration of the Modifiers of Nutrition. Prof. Pouchet, Paris.
103 The Home in Its Relation to the Tuberculosis Problem. W. Osler, Baltimore.
104 Goiter in a Newborn Child. W. T. Burns, Toronto.
105 Eyestrain from the Physician's Point of View. G. H. Burnham, Toronto.

Journal Missouri State Medical Association, St. Louis.

March.

106 Phlebitis Following Abdominal and Pelvic Operations. R. M. Funkhouser, St. Louis.
107 The Seborrheic Process. J. Grindon, St. Louis.
108 Case of Hydrophobia. B. A. Wilkes, St. Louis.
109 Pulmonary Tuberculosis with Special Reference to Its Early Diagnosis and Home Treatment. J. T. Anderson, Leeton, Mo.
110 Medical Treatment of Appendicitis. E. F. Hauck, St. Louis.
111 Pneumonia. John D. Seba, Bland, Mo.

Memphis Medical Monthly.

March.

112 Puerperal Eclampsia. C. A. Turner, Dyersburg, Tenn.
113 Puerperium. I. A. McSwain, Paris, Tenn.
114 What Is the Value of a Urine Examination? W. Krauss, Memphis, Tenn.
115 Water Internally, an Aid to Secretion, Elimination and Digestion. T. J. Happel, Trenton, Tenn.
116 Perineal Prostatectomy—Report of a Case. A. A. McClendon, Marianna, Ark.
117—Hemophilia—Report of a Case. D. A. Mohler, Lake Village, Ark.
117½—Id. F. J. Runyan, Clarksville, Tenn.
118 Periodical Vomiting and Dyspepsia. M. Goltman, Memphis, Tenn.

The Journal of the Kansas Medical Society, Lawrence.

March.

119 Eye Malingering. J. S. Weaver, Kansas City.
120 The Perineum. J. E. Hunt, Atchison.
121 Management of Breech Presentations. H. J. Stacey, Leavenworth, Kan.
122 Nasal Obstructions. J. E. Sawtell, Kansas City, Kan.
123 Immunity. (Continued.) G. H. Hoxie, Lawrence, Kan.
124 Chorea. S. S. Glasscock, Kansas City.
125 The Consultant, Conventional and Ideal. O. P. Davis, Topeka, Kan.

Buffalo Medical Journal.

March.

126 What Medicine Is Accomplishing To-day. H. D. Wey, Elmira, N. Y.
127 Practical Use of the Ophthalmometer. L. Burrows, Buffalo.
128 Electro-Magnet in Eye Work. A. C. Snell, Rochester.
129 New Genitourinary Table. E. W. Ruggles, Rochester.

Journal of the Mississippi State Medical Association, Vicksburg.

March.

130 Treatment of Lobar Pneumonia. W. C. Brewer, Columbus.
131 Pseudo-Diphtheria. E. W. Flowers, McComb City.
132 Influenza, Lagrippe or Russian Fever. W. H. Doty, Blackhawk.

Northwestern Lancet, Minneapolis.

March 15.

133 Headache: Cause and Cure, with Illustrative Cases. E. F. Reamer, Mitchell, S. Dak.
134 Undescended Testes: Report of Cases. W. Courtney, Brainerd, Minn.
135 Some Principles of Modern Treatment of Curvature of Spine. E. S. Geist, Minneapolis.
136 Removal of Iron and Steel from Parts of the Body Other Than the Eye by the Use of the Giant Magnet; Report of Two Cases. F. C. Todd, Minneapolis.

New Orleans Medical and Surgical Journal.

March.

137 Etiology of Acute Prostatic Inflammation and Suppuration. G. F. Lydston, Chicago.
138 Is the Etiology of Tubercular Adenitis and Hodgkin's Disease Identical? J. R. Briggs, Dallas, Texas.
139 Value of Antihemorrhagic Drugs in Gonorrheal Urethritis. A. Nelken, New Orleans.
140 Diagnosis and Medical Treatment of Cholelithiasis. J. A. Storck, New Orleans, La.

Atlanta Journal-Record of Medicine.

March.

141 Causes of Appendicitis. J. N. LeConte, Atlanta.
142 Tuberculosis. J. R. Briggs, Dallas, Texas.
143 The Doctor, the Child and the Community. M. McH. Hull.
144 Need for Medical Organization in Georgia. J. N. McCormack, Bowling Green, Ky.

Dominion Medical Monthly, Toronto.

March.

145 Surgical Treatment of Renal Tuberculosis. H. A. Kelly, Baltimore.
146 The Finsen Light, Roentgen Rays and High-Frequency Currents in the Treatment of Skin Diseases. G. Chambers, Toronto.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

March.

147 Radium: Its Radiations, Physical, Chemical and Mental. W. H. Taylor, Richmond, Va.
148 Causes and Symptoms of Nasal Obstruction. J. P. Davidson, Richmond, Va.

Texas Medical Journal, Austin.

March.

149 Modern Therapeutics and Pharmacy. F. Hadra, San Antonio.
150 Reminiscences of an Old Doctor. J. M. Fort, Paris, Texas.
151 Etiology and Treatment of Puerperal Eclampsia. F. S. Martin, Beaumont, Texas.
152 Strangulated Hernia in Man of 85—Operation. G. Harwood, Johnson City, Texas.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

March 18.

1 Present Teaching of Practical Midwifery in England. W. R. Dakin.
2 *Some Remarks on Puerperal Infection. A. W. W. Lea.
3 Increasing Use of Lead as an Abortifacient: Thirty Cases of Plumbism. A. Hall.
4 *New Methods of Studying Affections of the Heart. James Mackenzie Burnley.

2. **Puerperal Infection.**—The method of treatment adopted by Lea is based on 120 cases. He says a rise of temperature to 101 F., not accounted for by other causes, renders a careful examination of the generative tract necessary. If no sufficient cause is found in the vagina or perineum, and if the uterus is bulky and tender, a specimen of the lochia is removed and a uterine douche given, with due precautions. In 48 consecutive cases this was sufficient in 30 per cent. to bring down the temperature rapidly to normal. For some years Lea has supplemented this by careful swabbing of the interior of the uterus with absorbent wool soaked in a solution of biniodid of mercury in alcohol, 1 in 2,000. If this procedure is inefficient, or if the infection is severe, from the first, the uterus is explored with the fingers, preferably under chloroform anesthesia. If the cavity is perfectly smooth, showing an absence of retained products or of decidua—a condition which is rare—the uterus should be thoroughly swabbed out with the biniodid or some strong antiseptic solution, and packed with iodoform gauze soaked in an antiseptic. If a piece of placenta is found this should be removed, followed by swabbing and gauze packing. If the cavity is large and the surface irregular, due to hypertrophied and necrotic decidua, the patient's safety can only be insured by its complete removal. This is most efficiently done by the use of a suitable curette. Vaginal section may be done as supplementary to curettage if symptoms of pelvic peritonitis are present. If the uterus contains placenta or débris, accompanied by grave infection, hysterectomy is much more dangerous than curettage, and packing should never be done. The best results from hysterectomy have been obtained in cases of periuterine suppuration, gangrene of the uterus, or necrotic myomata.

4. **New Methods of Studying Heart Affections.**—In this paper Mackenzie discusses the action of digitalis on the human heart, particularly in regard to rhythm. He found that if the stimulus conduction or "dromotropic effect" of the heart muscle is normal, digitalis can not affect it. He has pushed the drug in many cases until other functions of the heart were affected, and until severe gastric disturbances resulted, without the slightest sign of conductivity being delayed. When conductivity is depressed digitalis may still further depress this function with great readiness. Patients suffering from slight depression of conductivity for years, with a regular heart rhythm, are exceedingly susceptible to the influence of digitalis, and a very small quantity of the drug may produce an arrhythmia due to the dropping out of the ventricular systoles. The auricle continues to contract with perfect regularity, but the stimulus occasionally fails to cross the fibers that connect auricle and ventricle.

The Lancet, London.

March 18.

5 Industrial Anthrax. T. M. Legge.
6 Physiology and Treatment of Surgical Shock and Collapse. J. P. Lockhart, Mummery.
7 Changes Produced by Inflammation in the Conjunctiva. M. Stephen, Mayou.
8 *Nature and Treatment of Epilepsy. W. A. Turner.
9 Mental Faculty in the Child; Its Growth and Culture. F. Warner.
10 *Acute Encephalitis and Perforation of the Sigmoid Flexure in Typhoid. J. McCrae.

8. **Nature and Treatment of Epilepsy.**—Speaking of epileptic equivalents, a term which really signifies a psychical state that in some degree takes the place of an epileptic seizure, Turner says that it is necessary to distinguish between postparoxysmal psychoses, or mental phenomena, following convulsive seizures, and psychical epileptic equivalents, or phenomena taking the place of ordinary epileptic seizures. The occurrence in the family history of similar or of allied conditions, interchangeable with forms of genuine epilepsy, or their association in the same person with the classical types of epilepsy, and the existence of definitely epileptic characteristics, such as sudden onset, transitory duration and irregular periodicity, may be accepted as sufficient reasons for regarding psychical clinical manifestations as epileptic equivalents. The best known and the most striking form of epileptic equivalent is that which is described as automatic wandering or epileptic ambulatory automatism. The condition more closely resembles the somnambulistic state than any other; so much so that some states of somnambulism in adults appear to be epileptic in character. Turner says that the condition known as narcolepsy, or periodical falling asleep, should also be regarded as an epileptic equivalent, and the close relation which exists in some cases between epilepsy and migraine leads him to the belief that some forms of migraine should be classified as epileptic equivalents. The scientific treatment of epilepsy should consist in more than an endeavor to subdue the convulsive element of the disease by drugs. As far as the treatment of the seizure is concerned, there is no single specific remedy, although the bromids come nearest to this definition; however, the influence of bromid salts on epileptic fits is variable. Bromid medication may arrest the seizures immediately or within a brief period of their administration. If any case is capable of arrest by treatment a satisfactory response will be apparent soon after the commencement of bromid treatment. Of 86 cases in which the fits were arrested for periods varying from two and a half to twenty-five years, rather more than 50 per cent. yielded to treatment within the first twelve months of regular bromid medication. Bromids may lessen the severity and frequency of the attacks, may change the time incidence of the seizures, or may exert no influence at all or may even make the attacks worse. The treatment should be commenced at the earliest possible time after the onset of the attacks and should be continued as long as is necessary in each case, but not less than two years. If benefit does not follow a daily dose of from 45 to 60 grains of one, or a combination of the bromid salts, some other remedy should be sought. Turner does not approve of large doses of bromids. The grand mal seizure is most amenable to their influence, the petit mal attacks and psychical equivalents being little influenced. In serial epilepsy and in the status epilepticus, chloral in combination with the bromids forms the most effective remedy, while in the postparoxysmal psychoses the bromids are of little service. Of the several forms of diet recommended in epilepsy, Turner has found that of salt starvation the most satisfactory. There are some cases in which the number of attacks is diminished during the continuance of the treatment, and others in which the improvement lasted after the diet was stopped. The chief disadvantage of the diet is its monotonous character, but as a relief to dyspeptic symptoms, it has been found distinctly useful. The chief feature of the method lies in the diminution of the bromid dose, from 20 to 30 grains of one of these salts at bedtime being sufficient. The most satisfactory management of the disease, says Turner, is that which is carried out in special institutions or under the care of a well-trained and sensible nurse or attendant. As important as therapeutic remedies, are congenial employment, hygienic modes of life and suitable amusements.

10. **Unusual Occurrences in Typhoid.**—The first case cited by McCrae developed a diphtheritic sore throat on the seventh day, the cultures giving a growth of diphtheria bacillus. On the thirteenth day blood culture gave a pure growth of the typhoid bacillus, and the Widal reaction was present. Death occurred on the fourteenth day. At the autopsy it was found that the entire left tempero-sphenoidal lobe of the brain was occupied by a soft dark red mass very definitely marked off from the surrounding tissue. Sections through the

brain tissue showed much blood, no evidences of nuclei of the original tissue and a general necrosis with hemorrhage into its site. The usual lesions of typhoid were also found. All the organs showed gas bubbles; in fact, the body was bloated beyond recognition by the effects of the *Bacillus aerogenes capsulatus*. The second case gave a positive Widal reaction on the ninth day. Abdominal pain was complained of on the eleventh, twenty-sixth, twenty-eighth and twenty-ninth days of the disease. There was tenderness and slight distension of the whole abdomen, but no rigidity. An hour later the pain in the lower abdomen was very severe, rigidity and tenderness were present all over the abdomen, and a diagnosis of perforation was made. A small perforation was found in the sigmoid flexure, which was repaired. The patient died a few hours later.

Journal of Tropical Medicine, London.

March 15.

11 Case of Mycetoma. G. A. Williamson.
12 Endemic Enlargement of Os Calcis in Formosa. J. L. Maxwell.
13 Measles Epidemic in Fiji during 1903. G. W. A. Lynch.

Intercolonial Medical Journal of Australasia, Melbourne.

February 20.

14 *Volvulus After Appendectomy. R. A. Stirling.
15 A Tack in the Right Bronchus for Nine Months. A. J. Wood.
16 Half-penny in Esophagus for Seventy-six Days. H. D. Stephens.
17 *Value of Ergot in Midwifery. J. W. D. Hooper.
18 Insolation in Infants. W. H. Summons.
19 Early Tubal Pregnancy; Abortion; Recovery. J. W. D. Hooper.

14. **Volvulus After Appendectomy.**—Stirling cites two cases of volvulus occurring after appendectomy. The first patient, seven weeks after the operation, when apparently quite well and walking about, suddenly felt a severe pain in the epigastrium. The next day he began to vomit, constipation became absolute and remained so for six days. On opening the abdomen a number of adhesive bands were seen stretching between the lower part of the ileum and the lateral wall of the iliac fossa. The dilated ileum filled the whole pelvis and was twisted into a horseshoe-shaped mass. The obstruction was readily overcome by untwisting the dilated coils, the operation was concluded in the usual way and the patient made a rapid and uneventful recovery. The second patient had had two previous attacks of appendicitis and was operated on in the "cold stage." On the evening of the ninth day she complained of pain in the epigastrium, later vomiting, with great prostration and absolute constipation. On opening the abdomen the small intestine was found to be everywhere distended and congested, and at the cecal region a collapsed loop of ileum was found adherent to the cecum, being glued to it by a wide band of omentum. The pelvis was completely filled with a volvulus of the small intestine, so dilated that, in one part, the serous coat had given way for several inches. This patient also recovered.

17. **Ergot in Obstetrics.**—In secondary hemorrhage, due to separation of thrombi in the uterine vessels, not associated with deciduoma malignum, Hooper believes that the free administration of ergot and strychnin hypodermically are necessary. For posthemorrhagic shock ergot must not be used, reliance being placed on increasing the fluid in the blood vessels by transfusions of normal, sterilized salt solutions, and stimulating the heart by strychnin and alcohol. In uterine inertia, during the second stage of labor, it is wise not to give ergot, but to secure a sound sleep for the patient, to empty the bladder and rectum, and to apply forceps early, so as to lessen the risk of hemorrhage. The preparations of ergot which have given Hooper most satisfaction are Tanret's ergotinin, dose 5 to 10 minims, injected into the muscle; its active principle is said to be cornutin, and it is seldom followed by suppuration at the site of puncture; or a dose of 1/30 of a grain of citrate of ergotinin administered in similar manner; and asepticized ergot, administered hypodermically. Ergot should never be administered until the source of the hemorrhage is accurately ascertained. It is unwise to give ergot to a patient who has renal inadequacy, or a diminished output of urea or albuminuria. By greater care during the puerperium, and especially by not allowing the second stage to be unduly prolonged, there is little reason to fear hemorrhage during the third stage or later; and if it does occur, and the uterus contains no retained portions of placenta or membranes, Hooper uses the hot water irrigation of the uterus advocated by Milne-Murray, supplemented by firm control of the fundus uteri through the abdominal wall, and then, he says, an injection of ergotinin may be given into the gluteus muscle.

Presse Médicale, Paris.

Last indexed page 506.

20 (1905, No. 1.) Fièvre typhoïde galopante. H. Roger and M. Salomon.
21 *Pathogénie et traitement du rhumatisme chronique articulaire. C. Parhon and J. Papinian.
22 *Insuccès apparents ou momentanés de la digitale. Rouslacroix.
23 (No. 2.) *Les neurofibrilles d'après la méthode et les travaux de S. Ramon y Cajal. L. Azoulay.
24 Traitement du catarrhe de la trompe d'Eustache par l'air chaud (hot-air treatment of eustachian tube). M. Lermoyez and G. Mahu.
25 Metal Tape Tourniquet.—Nouvel appareil hemostatique stérilisable permettant de régler et de vérifier l'hemostase. R. Lhomme.
26 (No. 3.) *Rupture traumatique de la rate (of spleen). M. Auvray.
27 Le réflexe cutané abdominal au cours de la fièvre typhoïde et de l'appendicite chez l'enfant (in children). J. A. Sicard.
28 (No. 4.) *L'ulcère malgache. Ulcère phagédénique des pays chauds (tropical ulcer). Fontoynont and E. Jourdean.
29 *Les sérums non spécifiques dans le traitement des tumeurs. Tuffier.
30 *Thérapeutique physique des hémorrhoïdes et de leurs complications. A. Zimmern.
31 (No. 5.) Tics et sommeil (sleep). R. Cruchet.

21. **Thyroid Treatment of Chronic Articular Rheumatism.**—A man of 47 had long suffered from pain and stiffness in the knees and other joints. Of all the various measures to relieve him of this trouble and also of an annoying eczema, large doses of sodium bicarbonate proved the most successful for a time, but they induced dyspeptic disturbances. The constant sensation of cold, dryness of the skin and the hypoazoturia suggested the possibility of thyroid insufficiency, and under thyroid treatment marked improvement was soon apparent. The pains vanished, the skin became soft and moist and the nails grew normal. Lancereaux, Claisse and others have reported similar success with thyroid treatment in certain cases of chronic articular rheumatism. The defective functioning of certain organs with an internal secretion, such as the thyroid and ovary, may have more to do with the origin of certain cases of articular rheumatism than has been recognized hitherto. Parhon remarks that there seems to be an antagonism between the ovary and the thyroid. When the function of one is defective or suspended altogether, then the functioning of the other becomes exaggerated. In regard to the production of urea, however, both of these organs favor its formation or its elimination. The proportion eliminated in the urine is diminished in case of both thyroid and ovarian insufficiency. This diminished output of urea may be a favorable condition for the development of chronic rheumatism. He is convinced that the thyroid gland takes some active part in the assimilation of lime, while the ovary favors its disassimilation. Hypofunction of the thyroid gland provides favorable conditions for the development of chronic rheumatism and also of certain forms of nephritis. A nephritic with edema, oliguria, albuminuria and low freezing point of the urine was put on thyroid treatment with the result that the amount of urine increased from 300 to 1,700 gm. and the albuminuria dropped from 6 gm. to zero. Viala has called attention to the action of thyroid treatment in the stimulation of the circulation, increase in the secretions and in the elimination of organic effete matters, reduced weight in proportion to the superactivity of the metabolic processes, and the attenuation or disappearance of the joint symptoms.

22. **Digitalis.**—"Not too much nor too little, nor too long nor too continuously" was Huchard's maxim in regard to digitalis. His "digitalis test" is the giving of 25 drops of digitalin in every case of arterial or endocardial cardiopathy when compensation begins to fail. If the test is negative,

that is, if the heart does not show any tonic effect from it, then other heart tonics are required, strophanthus or spartein. Rouslacroix outlines treatment as follows: In case of transient trouble, with a resistant myocardium, he gives large doses of digitalis in progressively smaller doses (constant effect). This is followed by a period of repose on a milk diet, returning to the digitalis in case of a new attack of asystolia. In case of chronic trouble, with a degenerated or sclerotic myocardium, he commences with the digitalis test and if the myocardium does not respond properly to the test he gives spartein and strophanthus alternately for a week. When the heart has been steadied, he then gives the digitalis in a single large dose (25 to 50 drops in two doses), then follows with repose on a milk diet. Whenever the myocardium shows signs of wavering, then the heart tonics should be resumed first, and later the digitalin. The official digitalin to which he refers contains 1 mg. of active principle in 50 drops of the alcoholic solution. He cites an instructive case to show how digitalis failed at first, but after the interposition of the heart tonics then the digitalis was able to exert its specific action and the patient was kept in comparatively good health by resumption of this alternate medication at need, with intervals of repose.

23. **Cajal's Study of Neurofibrils.**—Azoulay has published four preceding articles on this subject, in Nos. 59, 68, 74 and 80 of the last volume. The illustrations show the neurofibrils in the leech. The delicate neurofibrils all have their obvious use and he was unable to detect anything like the terminal, elementary, smaller fibrils which Apathy has reported. Even if they do exist, Cajal says, they must be enclosed in a sheath of cellular protoplasm like all the others. This sheath prevents the direct contact of the neurofibrils with each other. If the neurofibrils inside the sheath conduct, it can only be by a kind of induction. This is the same dilemma of pure physiology which confronted him in his study of the neurofibrils in vertebrates.

26. **Splenectomy by Resection of Cartilaginous Edge of Thorax.**—Auvray has cured 2 patients with ruptured spleen by prompt splenectomy, and 8 similar cases have been published in France, as he relates. In 2 other cases, the same intervention followed wounds of the spleen. He advocates his technic as affording better access and better postoperative results. He commences with a median incision and then carries it around under the costal arch. He then cuts the cartilage of the ninth rib with scissors and raises each stump, detaching from it the muscles attached to its rear surface. He gives his reasons why this severing of the cartilage is more effectual for the purpose than resection of the ribs. He resected the cartilaginous margin of the thorax for an extent of 10 cm. in his last case, and recovery after the splenectomy was remarkably rapid and smooth.

28. **Successful Phototherapy of Phagedenic Ulcers.**—Fontoynont reports nearly 400 cases of "Madagascar sore" treated at Tananarivoo during the last seven years. He is positive that these phagedenic ulcers are identical with the hospital gangrene of former centuries. He noted that the ulcers merely cleaned and exposed to the air healed better than those under dressings. Healing was much facilitated by painting the lesion with a 5 per cent. solution of eosin, and then exposing it to the sunlight all day, protecting it with a dressing at night. The chemical rays filtered through thick clouds seem to display the most curative power in this respect.

29. **Non-Specific Serums in Treatment of Tumors.**—Tuffier writes to emphasize the unmistakable effect on phagocytosis of any and all of the curative serums in vogue. Any one of them injected in turn into a cancer patient causes retrogression of the lesions to a certain extent and improvement in the clinical picture. The effect is slighter and more transient with each serum, until finally no influence is appreciable and the disease continues its inexorable course, possibly more rapidly than if the serum treatment had not been instituted. All these serums affect the number of leucocytes, inducing a superleucocytosis which is at first pronounced and lasts for a time. It grows constantly less and less decided and more transient as the injections of the same or of any other serum are repeated.

30. **Physical Treatment of Hemorrhoids and Their Complications.**—Among the measures suggested is the cultivation of the habit of defecation before retiring as hemorrhoids are more apt to subside in bed. The congestion may be relieved by having the anal region raised a little above the plane of the bed. In acute exacerbations, this alone will sometimes cure in two or three nights. A cool or cold sitz bath is indicated in case of inflamed and bleeding hemorrhoids. When the congestion prevents defecation, it may be found useful to sit on a vessel full of very hot water. Raynaud even advises searing the hemorrhoids by sitting on a vessel containing a burning piece of amadou (punk) or other tinder. Active movements of the abdominal region should not be allowed to persons with hemorrhoids, as such movements increase the abdominal pressure and oppose the reflux of venous blood. The only beneficial active movements of this region are those involving the muscles of the floor of the perineum. The patient reclines on the bed, partly sitting up, with supports for his heels and shoulders. Another person pushes his knees apart and the patient is told to try and bring his knees together at the same time also to lift his hips above the bed. Electricity has proved very effectual for the cure of hemorrhoids. The high frequency applications are most effectual. Two or three sittings of three minutes each will relieve the pain in acute cases, and the hemorrhoids will subside. In chronic cases Zimmern gives sittings for alternate weeks. The high frequency applications are especially effectual in case of pruritus and sphincteralgia. He remarks in conclusion that the uniformly fine results attained in the latter condition have established the superiority of electricity over all other known medical and surgical measures for anal fissure with sphincteralgia.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed page 1072.

32 (XLIV, No. 3.) Die Bruch-Operationen und deren Dauerresultate von 1896-1903 (herniotomies and remote results). Cluss (Wörner's clinic. Schw. Gmünd).
33 Operative Behandlung der Elephantiasis der Beine (of legs). G. Schmidt (Mikulicz' clinic, Breslau).
34 Traumatische Luxationen im Talo-crural-Gelenke. H. Ebel (Prague).
35 *Total-Exstirpation der Harnblase und die Versorgung der Ureteren (care of ureters after removal of bladder). T. Goldenberg.
36 Zur Diagnose und Therapie der Oesophagus-Divertikel. O. Bickel (Kümmell's service, Hamburg). One case.
37 Spiralbrüche an den langen Röhrenknochen der unteren Extremität (spiral fractures of long bones of leg). M. v. Brunn (von Bruns' clinic, Tübingen).
38 Saber-shaped Tibia in Hereditary Syphilis.—Zur Säbelscheidenform der Tibia bei S. hered. tarda. E. Finckh.
39 Beitrag zum Wesen der congen.-syph. "Tibia en lame de sabre." H. Moses (Königsberg).
40 Isolated Bullet Wound of Pancreas Cured by Operation.—Isolierte Schussverletzung des Pankreas, durch Op. geheilt. A. Becker.
41 Treatment of Cicatricial Stricture of Trachea.—Behandlung der Narbenstrikturen des Luftrohrs und die Mangoldt'sche Laryngo-Tracheoplastik. von Hacker (Graz).

35. **Total Removal of Bladder.**—Goldenberg epitomizes 25 cases from the literature and describes another from Garré's clinic. The operation was undertaken on account of malignant disease in nearly every case. The various technics, especially for care of the ureters afterward, are reviewed and compared, with the early and the remote results.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed page 1074.

42 (LXXV, Nos. 5-6.) *Remote Results to Date after Radium Treatment of Carcinoma.—Ueber die bisherigen Dauerresultate nach Radiumbehandlung von Carcinomen. A. Exner (Vienna).
43 *Outcome of Diffuse Peritonitis following Perforation of Ulcer in Stomach or Duodenum.—Heilungsresultate bei Peritonitis diffusa im Anschluss an acut in die Bauchhöhle perforiertes Magen-oder Duodenalulcus. P. Bonheim.
44 Exposure of Posterior Section of Urethra Without a Guiding Sound.—Freilegung des hinteren Abschnittes der Urethra von der Prostata ohne Leitsonde bei der Urethrotomia externa. F. Forgue (Montpellier).
45 Zur Urethra-Plastik. Reichel (Chemnitz).
46 Die Radikal-Operation der chronischen Kieferhöhleneiterung (maxillary sinusitis). Dreesmann.
47 Ascending Invagination.—Ueber aufsteigende Darmeinstülpung. N. Damianos.
48 Experimentelle Beiträge zur Anatomie und Pathologie des Gelenkknorpels (articular cartilage). R. Seggel. (Continued.)

49 *Heilung der Oesophago-tracheal-Fisteln (new esophagus suture). D. v. Navratil (Budapest).
50 *Zur Frage der Sterilität der Haut (of skin). P. Klemm (Riga).

42. **Radium Treatment of Cancer.**—Exner describes a case of carcinoma in the cheek of a woman of 73 which had been declared inoperable by some surgeons while others thought it might be removed by sacrificing part of the upper and lower jaw. The growth was treated with radium daily for a month, then curetted, and the radium rays applied again both from inside and outside the cheek for twelve days. Healing and cure progressed rapidly and there have been no signs of recurrence during the more than twelve months since. The ready dosability of radium is one of its advantages over the *x*-rays. He found that rubber absorbs the radium rays more than aluminum, so that he now prefers the latter metal for the holder. He grinds 60 mg. radium bromid with about 1.5 c.c. xylol and adds 2 drops of dammar. This mixture is then placed in an aluminum box, about 1.5 cm. square. The radium dust settles to the bottom very evenly when stirred. After evaporation of the xylol, a few more drops of dammar are added and a hard rubber cover is fitted into the aluminum box, strengthening its thin walls. For cavities he uses a similar box made in the shape of a cone. The strength of the radium is equivalent to 12 Holzknecht unities in four hours.

43. **Diffuse Peritonitis After Perforation of Ulcer in Stomach.**—Bonheim presents the clinical histories of 16 cases of perforation of an ulcer in stomach or duodenum. An operation was undertaken in every instance and 9 of the patients recovered. The interval before operation in the cured cases was generally less than twenty-four hours, but in one it was four days, in another twenty-six hours, and in a third, forty-eight hours. One patient succumbed to ileus a few hours after the perforation. The 6 duodenum cases were all in males, and only one recovered. In the majority of the cases, the ulcer had not been previously diagnosed. Bonheim attributes this fine result of more than 50 per cent. recoveries to his practice of systematic intravenous infusion of large amounts of physiologic salt solution or Ringer's solution during and after the laparotomy to counteract the "internal hemorrhage" induced by the peritonitis with consequent heart weakness.

49. **New Suture for Esophagus.**—Navratil relates that experiments on dogs and on the cadaver to make and then to cure a fistulous opening between the esophagus and the trachea have proved successful. He ligated the arteries in the thyroid gland and then detached the gland to render it movable. The next day he drew the gland to the point where the sutures had been applied in the esophagus and trachea, and thus reinforced them by the body of the thyroid gland. The dog thus treated was completely cured in a few days, the wound in the esophagus having rapidly healed by primary intention. By this utilization of the thyroid even large defects in the esophagus might be stopped. He used a rubber button to keep the fistula open. The thyroid gland was fitted in between the sutures in the trachea and esophagus and was held in place with a tampon and a few sutures in the skin. Recovery was rapid and complete and the anatomic healing and conditions were found ideal when the animal was killed two months later.

50. **Sterility of the Skin.**—Klemm admits that no means are known to date by which we are able to render the field of operation absolutely sterile. All other factors that make for asepsis can be controlled, but implantation infection from the ordinary germs always found on the skin, is the vulnerable point in our present surgical technic.

Münchener med. Wochenschrift, Munich.

51 (LII, No. 8, February 21.) Relations between Toxic Action of Cantharidin on Kidneys and Reaction of Urine.—Beziehungen zwischen der Giftwirkung des Kantharidins auf die Nieren und der Reaktion des Harns. A. Ellinger.
52 Zur bakteriologischen Diagnose. Gossner.
53 Raw or Boiled Milk?—Rohe oder gekochte Milch? H. Brüning (Leipsic).
54 Zur Behandlung des Ulcus cruris und seiner Ursachen. H. Vörner.
55 Epidemie der tropischen Malaria in Mostar (Bosnia). R. Fibich.
56 *Zur therapeutischen Verwendung des Sauerstoffs (oxygen). Cnopf.
57 Sodium phenylpropiolate in Laryngeal and Pulmonary Tuberculosis.—Inhalation von phenylpropiolsaurem Natron gegen Kehlkopf- und Lungentuberkulose. Bulling.
58 Gastric Catarrh and Administration of Hydrochloric Acid.—Zur Therapie des akuten und chronischen Magenkatarrhs und eine Form der Salzsäuredarreichung. F. Weitlaner.
59 Sepsis, verursacht durch Empyem der Nasennebenhöhlen (of nasal sinuses). Kretschmann.
60 Drillingsgeburt bei einem Uterus bicornis unicollis (triplets). A. Dreyfuss.
61 Torsion des Samenstranges (spermatic cord). H. Klinger.

56. **Oxygen in Therapeutics.**—Cnopf relates the details of a few cases in which inhalation of oxygen proved an actual life-saving measure. One patient was a child with laryngeal diphtheria and pneumonia. Tracheotomy was impossible on account of the suffocation at the slightest attempt to move the child. Inhalation of oxygen, however, quieted the symptoms to a remarkable extent and allowed tracheotomy to be undertaken and very easily carried through, with the ultimate recovery of the patient. In 2 other cases inhalation of oxygen had an unmistakably favorable effect on attacks of cardiac asthma in children. One of these children died suddenly soon after. It was found lying quietly and had not altered its position. Death must have been due to sudden arrest of the heart action. The thymus was found enlarged, with a small pus-filled cavity in the center.

Therapeutische Monatshefte, Liebreich's, Berlin.

Last indexed page 1075.

62 (XVIII, No. 9.) Beitrag zur Ernährung und Behandlung der chronischen Nierenerkrankungen (kidney affections). Lenné (Neuenahr).
63 Apparatus for Applying Kerosene to Stagnant Water.—Ueber Vernichtung der Larven und Nymphen der Culiciden und über einen Apparat zur Petrollerung der Sümpfe. B. Galli-Valerio and J. R. de Jongh (Lausanne).
64 Unguentum Credé in der Augenheilkunde (in ophthalmology). W. Feilchenfeld.
65 Malz-Extrakt ist ein wertvolles Nährmittel (malt extract a food). A. Wolff.
66 (No. 10.) Serum Treatment of Anthrax.—Zur Milzbrandtherapie mit Versuchen über die immunisierende Wirkung des Serums. R. Gonser.
67 Serum Treatment of Puerperal Fever.—Behandlung des Wochenbettfiebers mit Antistreptokokkenserum. H. Pilcer and M. Eberson.
68 Treatment of Detachment of Retina.—Zur Therapie der Netzhautabhebung unter bes. Berücksichtigung der Skleralresektion zur Heilung derselben. P. Schultz.
69 Zur Heilung der Unterschenkelgeschwüre (leg ulcers). Engelbrecht.
70 Ueber die Behandlung von Deformitäten mit Hilfe elastischer Heftpflasterzugverbände (adhesive plaster traction bandages). J. L. Beyer (Dresden).
71 Physikalisch-chemische Grundlagen für die therapeutische Beurteilung der Mineral Wässer (waters). M. Roloff (Halle). (Commenced in No. 9.)
72 (No. 11.) Zur Behandlung des Keuchhustens (whooping cough). Stepp.
73 Antiseptische oder mechanische Händedesinfektion. R. Schaeffer.
74 *Zur Behandlung des Erysipels. F. Franke (Braunschweig).
75 Subcutaneous Removal of Tuberculous Lymph Glands in Neck.—Ueber die Entfernung der tub. Lymphdrüsen aus dem Halse auf subkutanem Wege. J. Miclescu.
76 Ueber die bisherigen Resultate mit der elektromagnetischen Behandlung. E. Lindemann.
77 Treatment of Pulmonary Affections by Way of the Intestines.—Behandlung der Tuberkulose (und andere Erkrankungen) der Lunge, vom Darm aus. Meyer.
78 Zur Ozena-Behandlung. M. Cramer (Coburg).
79 Das Glücksmannsche Verfahren der Oesophagoskopie. P. Danielsohn (Berlin).
80 Zur Kritik der Iodbäder (iodized baths). A. Rahn.

74. **Treatment of Erysipelas.**—Franke announces that he has been almost invariably successful, during the last thirteen years, in curing erysipelas with collodion and ichthyol. His aim is to compress the cocci in the tissues and to let their products accumulate without a chance to escape, hoping that this will in turn stifle the cocci. On the limbs, he applied strips of adhesive plaster. Each was about four-fifths of the circumference of the limb in length, and they were applied around the limb about 2 cm. apart, the gaps lapping, so that the constriction was not entirely circular. The erysipelas was always arrested by these constricting bands. It never progressed as far as the second strip. The same constriction is obtained on the head with collodion painted like a frame around the patch of erysipelas. Several layers are applied as it dries. The strip of collodion is about the width of a finger and encircles the patch, extending across the brow or near the hair, in front of or behind the ears and down to the neck. The patient is told not to laugh nor frown for fear of cracking the collodion, and any cracks are brushed over again at once. The patch itself is treated with ichthyol salve,

but the salve must not come in contact with the collodion to dissolve it. The skin must be cleared of grease before using the collodion, preferably with benzine. The erysipelas never encroached on the strip in his experience, and he commends this technic as a simple, convenient and reliable means to conquer this affection.

Riforma Medica, Naples and Palermo.

Last indexed page 1076.

81 (XXI, Nos. 6-7.) *L'intervento chirurgico nelle cirrosi del fegato con ascite. O. Cignozzi.
82 Morbo di Parkinson post-infettivo e famigliare. P. Pennato.
83 *Effects of Extirpation of Pancreas.—Effetti della estirpazione del pancreas. T. Silvestri.

81. **Operative Treatment of Cirrhosis of the Liver with Ascites.**—The Italians have been active in this line, and Cignozzi's monograph gives the complete history to date of surgical treatment of cirrhosis of the liver with ascites. The latest compilation shows 224 cases thus treated, with 46 per cent. of operative cures or improvements, 42 per cent. mortality, and 12 per cent. recurrences when the cirrhosis of the liver was of the atrophic type with ascites. Cirrhosis of the liver with hypertrophy shows 70 per cent. cured, 15 per cent. mortality and 10 per cent. recurrences. Two cases have been operated on by Tricomi at Palermo, and are here reported in detail. The results at first were unfavorable but later became extremely satisfactory. Alcoholism was excluded in each case. The first was one of nutmeg liver, of cardiac origin, with considerable and rebellious ascites. In the other, the cirrhosis of the liver was of the atrophic type, and the toxic-infectious nature of the morbid process and its intestinal origin were apparent from anamnesis. The first case was in a girl of 12 with mitral and tricuspid insufficiency and a history of acute articular rheumatism, at the age of 6. The heart lesions were well compensated, the liver was functioning moderately well, and the kidneys were apparently sound. The only serious symptom was the rebellious and annoying ascites. The passive hyperemia and congestion of the liver were obviously the principal cause of the ascites, and indicated operative treatment to supply new routes for the blood to relieve the passive engorgement of the liver. The omentum was drawn up between the muscles and the parietal peritoneum through a slanting incision near the liver. The patient had to be tapped two or three times in a month to prevent strain on the healing wound. After this, there was no further recurrence of the ascites or of the edema anywhere, and the patient remained in comparative good health for a year and a half, but then succumbed to sudden aggravation of her heart trouble without further symptoms from the circulation in the liver. The other patient was a woman of 45, and the syndrome indicated toxic-infectious cirrhosis of the liver with sudden appearance of ascites. The heart and kidneys were apparently sound. This patient also had to be tapped three times, but has been free from all indications of ascites during the two years since, while the general health has been much improved. There are seven varieties of cirrhotic affections of the liver with ascites, Cignozzi remarks. When the ascites is due to a thrombotic or phlebitic process or if the obstruction is due to compression from without, the assistance of the surgeon may effect a radical cure. In case of gin liver, the mortality of surgical intervention is high and the successes are few. But the condition is so discouraging that a trial is justified and, in exceptional cases, great relief may be obtained. Conditions are most favorable for success in the form with hypertrophy of the liver. In cirrhosis of cardiac origin the ou look is less promising, but very satisfactory results have been occasionally reported. In cirrhosis due to toxic-infectious processes, which includes the Budd and Banti types, great benefit is also liable to be derived. In cirrhosis of syphilitic origin there is seldom ascites, but cases have been published in which it did occur and was cured by deviation of the portal circulation by omentopexy. Zuccaro has reported a cure of a congenital syphilitic affection of this nature. When malarial cirrhosis of the liver is due primarily to the spleen, surgical intervention offers better prospects than when the liver is more seriously affected. The latter is generally the case when the cirrhosis of this organ is primary. In the splenic variety it is advisable to develop the collateral circulation of the splenic region, as well as of the liver, in performing omentopexy.

83. **Effects of Extirpation of Pancreas.**—Silvestri's experiments were made on young dogs. Complete removal of the pancreas always entailed transient glycosuria for twenty-four to thirty-six hours, followed by very slight glycosuria proportional to the nature of the food taken. All glycosuria vanished in forty-five to sixty days. The animals also displayed at first various nutritional and metabolic disturbances, with excessive hunger and thirst. These disturbances gradually subsided and the animals returned to apparently normal conditions. In one of the 7 animals the glycosuria was more pronounced, and the animal became sicker and sicker, with final paresis of the hind legs. The symptoms correspond in every respect with those observed in apancreatic diabetes, and the liver was found atrophied, in fatty degeneration, with vacuolization, when the animal was killed in about a month. In this case there had evidently been infection and intoxication which had prevented the development of the compensatory processes which alone render it possible for the organism to resume its functions and to recuperate. In conclusion, Silvestri protests against the way in which every glycosuria is called diabetes. There are many diabetics who thrive with large proportions of sugar, and others who are in bad condition with very little sugar. He does not think that constitutional diabetes is the effect of the reduced sugar destroying capacity. Its essential characteristic is a progressive aggravation of the initial changes. The voracious appetite and thirst are the reaction, the response of the organism to abnormal or excessive decomposition going on within it. Diabetes is, therefore, in its essence an autolysis. This conception has been adopted by Ferrannini for diabetes insipidus, which he explains as an anomaly in metabolism due to the excessive instability of the albuminoid molecule. Hence the relationship between these two forms of diabetes, and the frequent transformation of one into the other. The discrepancies in the results obtained by various investigators have probably been due to predisposing conditions, to the age of the animals experimented on, and to complications such as shock, infections, autointoxications, etc.

Hospitalstidende, Copenhagen.

Last indexed page 919.

84 (XLVII, No. 35-36.) *Den kroniske Gastritis. K. Faber.
85 En Elevator-Pincet (ophthalmic forceps). A. Gad.
86 (No. 37.) Jequirity in Treatment of Pannus trachomatosus.—Om Behandling af hornhindeuklarheder med Jequiritol. S. Schou.
87 Sixth Northern Congress of Surgery, Göteborg, August, 1904. (Concluded.)
88 (No. 38.) *Om Behandling af Tubar-graviditet. J. Kaarsberg.
89 (No. 39.) *Causes of Tetania strumipriva.—Om Aarsagen til Tetania strumipriva. S. Christens.
90 (No. 40.) 26 appendektomier à froid (interval operations). H. Maag.
91 (Nos. 41-42.) *Elimination and Retention of Chlorids.—Om Udskillelse og Retention af Klorider. V. Scheel.
92 (No. 43.) Mastoidal-Operationer i Skopolamin-Morfin-Narkose. V. Saxtorph Stein.
93 (Nos. 44-45.) Frenkel's Re-educating Principle Applied Generally to Treatment of Disease.—Frenkel's Ovelsesterapi og ovelsesprincipets almindelige Anvendelse ved Sygdomsbehandling. H. Munch-Petersen.

84. **Chronic Gastritis.**—Faber has been studying the anatomic findings in the stomachs from 40 cases of chronic gastritis and in scraps obtained through the stomach tube in 20 other cases. Aside from the cancer cases, he has encountered 10 cases of achylia and in all of these there were evidences of decided gastritis as also in 10 other cases of achylia in which the condition was determined from scraps brought up by the stomach tube. His experience has demonstrated the possibility of the existence of achylia without entire destruction of the glands, but that it is always accompanied by gastritis. In fact, the diminished secretory functioning is a manifestation of the gastritis. Hypersecretion may also occur with gastritis, but probably both are due to the same cause, usually an ulcer. Their action is antagonistic, on the whole, as the gastritis, when it obtains the upper hand, leads to achylia. The latter may persist long after the gastritis has subsided. His clinical experience with 44 cases of gastritis during the

last year and a half seems to indicate that the affection passes through three phases: 1, increased production of mucus with normal secretion; 2, production of mucus with hypochylia, and 3, achylia. In the first phase there is slight, superficial infiltration; in the second phase, the infiltration is more pronounced and deeper; in the third, it is extensive and diffuse with more or less atrophy. The gastritis frequently runs a latent course; sometimes nervous symptoms predominate, in other cases intestinal symptoms—diarrhea. The latent cases are those which have been erroneously designated as "nervous hypochylia or achylia." Nervous achylia is possible, but has not been demonstrated to date. In 6 or 7 of his series of 44 cases and in a number of others in his private practice the gastritis was latent and the nervous symptoms predominated, the manifestations of dyspepsia being so slight as to be overlooked. One symptom liable to mask the gastritis in such cases is the *vertigo e stomacho laeso* which may come on after meals without a trace of other dyspeptic disturbances. Other cases may present symptoms characteristic of neurasthenia, but in reality due to the chronic gastritis. True hysteric symptoms may also be superposed on a chronic gastritis, as he has had occasion to witness in a number of cases. Repeated examination of the functional capacity of the stomach will reveal the underlying gastritis in many of these puzzling cases. Secondary, hematogenic gastritis may develop after intestinal troubles or after acute infectious diseases. Primary gastritis is generally the result of imperfectly masticated or irritating food. He found defective teeth in 23 out of his 44 cases. In 7 of his patients, chronic abuse of alcohol was evidently a prominent factor, but he has frequently found the stomach apparently normal in persons extremely addicted to the use of liquor. The gastritis in other cases was due to abuse of laxatives, to pyorrhea alveolaris, to the use of chewing tobacco or to gastroptosis, but in a number of patients no cause could be determined. The discussion on Faber's article follows in No. 39 of the *Tidende*.

88. **Treatment of Tubal Pregnancy.**—Kaarsberg remarks that the best treatment for a progressing tubal pregnancy is extirpation. An early diagnosis is the main thing. He has had 70 cases since 1898, and 25 were operated on; 35 uncomplicated cases were treated expectantly or with curetting, and 6, in which the hemorrhage was profuse, were treated by laparotomy. The 28 cases of hematocele were treated by colpotomy in 17; expectantly in 9, and by laparotomy in 2. The pregnancy had progressed as far as to the eighth month in only one case. With a single exception, the patients were dismissed in good condition; in this case a tumor developed from an organized hematocele expectantly treated and this tumor induced fatal ileus a year later. A tubal pregnancy should be suspected when there is a violent and abnormally protracted menstruation without an intermission or with only a very brief one. When there is at the same time pain in the hypogastrium, the patient should be examined by a specialist and if a tumor be discovered in the adnexa the woman should go at once to a hospital where she can be under close supervision. Even the smallest tumor should compel this. Among his patients treated on this principle hemorrhage occurred in only 3 cases under hospital treatment. Expectant treatment or curetting of the uterus is allowable with a tubal mole, as the pregnancy ceases with the development of the mole. A hematocele, if not too large, is best treated by colpotomy and drainage. In his 17 cases he left the tube untouched.

89. **Experimental Thyroidectomy and Parathyroidectomy.**—Among the facts noted in Silvestri's experimental research on cats and goats, was the loss in weight of the animals when the thyroid and parathyroid glands were removed. One parathyroid gland but none of the thyroid tissue was removed from one cat, and this was the only animal that increased in weight instead of losing after the operation. Three cases of tetany were in goats that had been thyroidectomized for the production of organ preparations for treatment of exophthalmic goiter. The symptoms indicated that the tetany in these cases was unmistakably due to parathyroid insufficiency. Tetany developed invariably when all the parathyroid tissue had been removed, even when much thyroid tissue was left, but there was no tetany when some parathyroid tissue was left. (See Vassali's report of treatment of eclampsia with parathyroid tissue, in Miscellany column.)

91. **Retention of Chlorids in Disease.**—Scheel examined the organs of 20 cadavers in order to determine the proportion of salt retained in their various tissues. The organs were cut up into small pieces and the blood expressed. The tissues were then dried and rinsed to extract the chlorids. The subjects had succumbed to some valvular, liver or kidney affection, pneumonia, peritonitis or pernicious anemia or to some sudden traumatism. He found the proportion of sodium chlorid about the same in the sound and in the diseased organs. There was no evidence of what he calls "histo-retention," that is, retention of salt in the tissues. Experiments on animals were equally conclusive, showing that the salt retained does not combine with the tissues but is merely held in solution in the accumulated fluids. The retention of water from some disturbance in the kidney entails the secondary retention of salt. The fluid in the body holds back the necessary proportion of salt to keep up the osmotic balance. The greater the amount of fluid accumulated the larger the amount of salt retained. By reducing the intake of salt the blood takes up from the effusions a part of their salt with some of their water. This can be accomplished only when the diuresis is satisfactory; otherwise the most that can be obtained is the maintenance of the *statu quo*. The osmotic concentration and the permeability of the kidney are the variable factors which make the effects of retention or deprivation of salt differ in individual cases.

Russky Vratch, St. Petersburg.

Last indexed page 511.

94 (III, No. 2.) Marked Chemical Changes in Organism of Rabbits Generated when Male Parent was Starving.—O chem. izmeneniyakh, etc. P. K. Ugrumoff.
95 *O sekretornikh depressivikh neurozakh (secretory depressive neurosis). T. Kitaeff.
96 Prevention of Industrial Accidents and First Aid.—O preduprezhdenii nestchastikh slutchaev, etc. L. B. Bertenson.
97 (No. 3.) *Treatment of Vesicovaginal Fistula.—K. terapii puzyrnykh svischtchei u zhenshtchin. V. S. Gruzdeff.
98 *Diffuse Peritonitis Originating in Gynecologic Affections.—Razlitie peritonity, vyzvyvaemye bolyeznami zhenskikh polovykh organov. J. B. Zeldovitch.
99 Brandenburg Test for Albumin.—O technikye kolitchestvennago opredyeleniya byelka v motchye i drugikh zhidkostyakh po Brandbergy. A. F. Gegerstedt.
100 *Operative Treatment of Prolapse of Rectum.—Ob op. letchenii vypadenii pryamoi kishki. K. Weber. (Commenced in No. 2.)
101 *Malaria Contagion in Hospital.—Estestvennoe zarazhenie bolotnoi likhoradkoi v. lazaretye v Noyabrye. V. C. Ostaptchuk.
102 *Krioskopie moloka (of milk). I. S. Bomstein.
103 (No. 4.) Healing Powers of Nature.—O tzyelitelnoi silye prirodi. S. D. Mikhnoff.
104 Appeal for Dispensaries for Treatment of Drunkards with Hypnosis.—Ob organizatzii ambulatorii dlya alkoholikov. T. Rybakoff.
105 Toxins of Bacillus of Soft Chancre.—O toksinov myagko shancroznoi palotchki. S. V. Sovinsky.
106 Russian Folk-lore in Regard to Measures for Drunkenness.—Russkiya narodno-vratchebniya credstva ot pyanstva. v. Demitch.

95. **Supposed Neurotic Gastric Achylia.**—Kitaeff applies the term of secretory depressive neurosis to a case of periodically recurring pains in the stomach and achylia gastrica which suggested the diagnosis of tabes although no other symptoms of the latter were apparent. The patient was a young man who had had a severe fall four years before. After the fall, ptosis of both stomach and liver were noted but without subjective symptoms from this cause. Notwithstanding the continuance of the achylia, the digestion did not seem to suffer as the intestines apparently had assumed the lacking digestive functions.

97. **Treatment of Vesicovaginal Fistula.**—Gruzdeff has had occasion to operate in 30 cases of vesicovaginal or vesicouterine fistula in less than four years. The better results attained in the last 18 cases must be due to the perfected after-treatment as the operative technic, suturing the fistula, etc., was the same in all. The permanent catheter is introduced to the extreme lowest part of the bladder and left for nine days. The patient is carefully instructed to lie in such a way as to keep the wound up, never in a position in which the

urine would flow down to the wound. If the wound is in the median line the patient is kept on her back; if on the right side, she lies on the left. The suture threads are removed from the walls of the vagina on the tenth day and the patient is then allowed to change her position at will. On the eleventh day the catheter is discarded and on the twelfth, the patient is allowed to get up. By carefully observing these precautions he was successful in curing 94 per cent. of his patients in the last 18 cases, while there were 50 per cent. of failures in the first 12, although the operative technic was the same. In his first 12 cases, only 5 were cured, and 2 of these required a second and one a third operation. In the last series, 15 out of the 18 were cured and only 2 required a second and one a third operation.

98. **Diffuse Peritonitis of Gynecologic Origin.**—Zeldovitch reviews his experiences with 272 cases of diffuse peritonitis during the last eight years. About 23 per cent.—64—of the cases were secondary to some gynecologic affection, and he devotes special attention to this group. The proportion would be 36 per cent. if he included the tuberculous and puerperal cases in which the primary focus was in the genitalia. The only chance for the patient in these gynecologic cases of general peritonitis, is from the assistance of the surgeon, and the prospects are more encouraging in this class than with peritonitis from other sources. He operated on 117 of the total 272 patients, in 9 tuberculous, 11 typhoid, 19 appendicitis, 38 mixed, and 40 gynecologic cases. In 31 of the latter, the records show that 9 recovered and 22 succumbed. This is a proportion of 29 per cent. of recoveries. The operation was not performed until after 4.6 days from the beginning of symptoms on an average, and some who recovered were not operated on until the fifth, sixth and seventh day. The deaths were in cases in which an operation was not performed until the third to the sixth day in 7, and from the seventh to the fourteenth day in the others. His experience has been that patients with general peritonitis of gynecologic origin, not operated on, lived on an average 10.5 days, while those with general peritonitis of other origin succumbed in 3.7 days. The former class of patients are not debilitated by such serious primary affections as those in the latter class. He protests against the prevailing pessimism in regard to diffuse peritonitis if it can be proved that it originates in some gynecologic affection.

100. **Treatment of Prolapse of Rectum.**—Weber reports 3 cases treated by Ott's technic for restoration of the floor of the pelvis with excision of the prolapsed portion. This portion is usually more or less degenerated and restitution *ad integrum* is generally impossible. The technic is described in detail and compared with other technics.

101. **Malaria from Hibernating Mosquitoes.**—A soldier entered a hospital in the Caucasus in August on account of a lingering leg ulcer. While still in the hospital in November he acquired malaria, and the parasites were found in his blood. The region has the reputation of being free from malaria, but a few specimens of the anopheles claviger were discovered in the room which he had been occupying.

102. **Cryoscopy of Milk.**—The French have been proclaiming for some time that it is possible to detect by the variation of the freezing point when milk has been watered. Bomstein confirms their assertions and states that even 5 per cent. water can be infallibly revealed by this means. The freezing-point of pure milk is about minus .55 to .57 C. (just below 31 F.)

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by H. R. M. Landis, M.D., Visiting Physician to Tuberculosis Department of Philadelphia Hospital. Vol. I, March, 1905. Surgery of the Head, Neck and Thorax—Infectious Diseases, Including Acute Rheumatism, Croupous Pneumonia and Influenza—The Diseases of Children—Laryngology and Rhinology—Otology. Paper. Pp. 298. Price, $6.00 per annum. Philadelphia and New York: Lea Bros. & Co. 1905.

CONSERVATIVE GYNECOLOGY AND ELECTRO-THERAPEUTICS. A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. Betton Massey, M.D., Attending Surgeon to the American Oncologic Hospital, Philadelphia. Fourth Edition, Revised, Rewritten and Greatly Enlarged. Illustrated with Twelve Original, Full-Page Chromo-lithographic Plates; Twelve Full-Page Half-tone Plates of Photographs Taken from Nature, and 157 Half-tone and Photo-Engravings in the Text. Pp. xvi-468. Cloth. Price, $4.00 net. Philadelphia: F. A. Davis Company.

MANUAL OF PSYCHIATRY. By J. Rogues de Fursac, M.D., Formerly Chief of Clinic of the Medical Faculty of Paris. Authorized Translation from the French by A. J. Rosanoff, M.D., Junior Assistant Physician, L. I. State Hospital, Kings Park, N. Y. Edited by Joseph Collins, M.D., Professor of Diseases of the Mind and Nervous System in the New York Postgraduate Medical School. First Edition. Cloth. Pp. 352. Price, $2.50. New York: John Wiley & Sons. 1905

JAHRESBERICHT über die Fortschritte in der Lehre von den Pathogenen Mikroorganismen umfassend bacterien, Pilze und Protozoën. Unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben von Dr. med. P. von Baumgarten, Professor of Pathology, University of Tubingen, und Dr. med. F. Tangl, Professor of Physiologic Chemistry, University of Budapest. Achtzehnter Jahrgang. 1902. Zweite Abtheilung. Paper. Leipzig: Verlag von S. Hirzel. 1905.

WHARTON AND STILLES MEDICAL JURISPRUDENCE. Vol. II. Poisons. By Robert Amory, A.M., M.D., President of the Sixth National Convention of 1880 for Revising the U. S. Pharmacopeia, and Robert L. Emerson, A.B., M.D., Instructor in Physiological Chemistry, Medical School of Harvard University. Fifth Edition. Cloth. Pp. 858. Price, $18.00 net in three volumes. Rochester, N. Y.: Lawyers' Co-operative Pub. Co. 1905.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Price, with 129 Engravings and 10 Full-page Plates in Colors, $5.00 net. Cloth. Pp. 1,120. Philadelphia and New York: Lea Brothers & Co. 1905.

RECHERCHES CLINIQUES ET THERAPEUTIQUES SUR L'EPILEPSIE, L'HYSTERIE et L'Idiotie Compte-Rendu du Service des Enfants Idiots, Epileptiques et Arrieres de Ricetre Pendant L'Annee 1903. Par Bourneville. Ave la collaboration de J. Boyer, L. Izou. Lemaire, Reine Maugert, Julien Noir, Paul-Boncour. Vol. xxiv. Paper. Paris: Felix Alcan. 1904.

A MANUAL OF MECHANICAL DENTISTRY AND METALLURGY. By George W. Warren, A.M., D.D.S., Professor of Clinical Dentistry, Pennsylvania College of Dental Surgery. Second Edition, Revised and in Parts Rewritten, with 179 Illustrations. Cloth. Pp. 262. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

UNCOOKED FOODS AND HOW TO USE THEM. A Treatise on How to Get the Highest Form of Animal Energy from Food, with Recipes for Preparation, Healthful Combinations and Menus. By Mr. and Mrs. Eugene Christian. Cloth. Pp. 246. Price, $1.00. New York: The Health-Culture Co. 1904.

FIFTH ANNUAL REPORT OF THE WORK OF THE CANCER LABORATORY OF THE NEW YORK STATE DEPARTMENT OF HEALTH Conducted at the Gratwick Research Laboratory, University of Buffalo, for the Year 1903-4. Paper. Pp. 164. Albany: J. B. Lyon Co. 1904.

THE PHYSICAL CULTURE LIFE, A Guide for All Who Seek the Simple Laws of Abounding Health. By H. Irving Hancock, Author of Japanese Physical Training. Illustrated. Cloth. Pp. 229. Price, $1.25. New York and London: G. P. Putnam's Sons. 1905.

LEHRBUCH DER KINDERKRANKHEITEN für Arzte und Studirende von Dr. Adolf Baginsky, Professor der Kinderheilkunde an der Universität Berlin. Achte völlig neu durchgearbeitete und verbesserte Auflage. Paper. Leipzig: Verlag von S. Hirzel. 1905.

EIGHTEENTH BIENNIAL REPORT OF THE STATE BOARD OF HEALTH OF CALIFORNIA for the Fiscal Years from July 1, 1902, to June 30, 1904. Paper. Pp. 35. Sacramento: W. W. Shannon. 1905.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. 1905. Twenty-third Year. Cloth. Pp. 643. Price, $3.00 net. New York: E. B. Treat & Co. 1905.

TWENTY-NINTH ANNUAL REPORT NEW YORK STATE REFORMATORY AT ELMIRA for the Fiscal Year Ending Sept. 30, 1904. Paper. Pp. 48. Reformatory: The Summary Press. 1905.

FIFTY-SIXTH ANNUAL REPORT OF THE CENTRAL INDIANA HOSPITAL FOR THE INSANE for the Fiscal Year Ending Oct. 31, 1904. Paper. Pp. 86. Indianapolis: Wm. B. Burford. 1905.

ELEVENTH ANNUAL REPORT OF THE MANAGERS AND OFFICERS OF THE CRAIG COLONY FOR EPILEPTICS at Sonyea, N. Y., to the State Board of Charities, Oct. 1, 1904. Paper. Pp. 88.

NINETEENTH REPORT OF THE STATE BOARD OF HEALTH AND VITAL STATISTICS OF MINNESOTA, 1901-1902. Cloth. Pp. 417-xx. St. Paul: Pioneer Press Co. 1902.

TWENTY-FIFTH ANNUAL REPORT OF THE HEALTH OFFICER OF THE DISTRICT OF COLUMBIA, 1903-4. Cloth. Pp. 216. Washington: Government Printing Office. 1904.

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